THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 82. NEW YORK, SATURDAY, MAY 16, 1903. No. 20.

ADDRESS.

THE DUTIES AND RESPONSIBILITIES OF TRUSTEES OF PUBLIC MEDICAL INSTITUTIONS.*†

BY W. W. KEEN, M.D., LL.D., F.R.C.S. (HON.),

OF PHILADELPHIA;

PROFESSOR OF THE PRINCIPLES OF SURGERY AND OF CLINICAL SURGERY, JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

THE value of occasional and stated gatherings of the principal leaders of medical thought in the various special departments is acknowledged by all. Certainly those who have attended this Congress, now held for the sixth time, have felt its broadening influence. We are all apt to become narrow when we are devoted heart and soul to one specialty, be it medicine, surgery, physiology, ophthalmology, or any other. When we meet nearly all of the more prominent men in cognate interrelated branches of medicine in Washington every third year, we are sure to find that there are as interesting and as important questions in other specialties as there are in our own; and, moreover, we are sure to find that there are men of as acute intelligence, wide reading, and original thought in other than our own departments whom it is our pleasure to meet, and whose acquaintance becomes not only valuable for what we find them to be, but because of the stimulus that they give to our own thoughts.

Ordinarily the Presidential address has been devoted to some special professional topic. My first idea was to select such a subject for to-night, but as I was absent from the country when I received the very highly appreciated notice of my selection, I asked the members of the executive committee for suggestions, being sure that their united judgment would be better than my own. I was very glad when they proposed the topic upon which I shall address you, partly because it is different from the usual type of such addresses, and partly because it seems to me appropriate to the present time. I shall, therefore, give the time at my disposal to presenting to you some thoughts on "The Duties and Responsibilities of Trustees of Public Medical Institutions."

Before entering upon my topic I beg to state explicitly that what I may say is offered in no spirit of unfriendly criticism, but only by way of friendly suggestion. I have been too long and too intimately associated with scores of such trustees not to know that they are almost without exception generous, self-sacrificing, giving of their time and money and thoughtful care without stint and often sacrificing personal convenience and comfort for the good of the college or hospital which they so faithfully serve. Anxious to discharge their trust to the best of their ability, I am sure they will accept these suggestions, the fruit of forty years of personal service as a teacher and a hospital surgeon, in the same friendly spirit in which they are offered.

There are two such classes of institutions to be considered: (1) Medical colleges, and (2) Hospitals, whether they be connected with medical schools or not.

There is, it is true, a third class of trustees for a wholly new kind of medical institution which has arisen as a modern Minerva Medica, born full-armed for the fray. Of this class we have as yet but a single example —the Rockefeller Institute for Medical Research. Akin to it are laboratories for special investigations such as the two Cancer Laboratories in Buffalo and Boston. But the Rockefeller Institute is so recent, and its scope at present necessarily so undetermined, that I would not venture to consider the duties of these trustees, and I am sure their responsibilities are adequately felt by them. Moreover, their admirable selection of a Director for the institution is the best pledge of a future wise administration. I heartily congratulate the Profession and America upon the establishment of so peculiarly useful an institution. Its founder has wisely left its work unhampered saving as to its general purpose, and the whole world, and especially the United States, will soon be his debtor for researches and discoveries that will abridge or even abolish some diseases, shorten sickness, prolong life, and add enormously to the sum of human happiness. Could any man of wealth by any possible earthly gift win for himself a higher reward or a happier recollection when he faces the future world?

Though not a medical institution, I cannot refrain also at this point from expressing not only for myself, but for you, our hearty appreciation of what the Carnegie Institution has done for medicine in the re-establishment of the *Index Medicus*. This publication is essentially and peculiarly American in origin, but its usefulness is worldwide. It aids alike an author in Japan or in India, in Europe or America. It is one of the best and wisest undertakings of this lusty educational giant. But to ensure the permanent publication of the *Index Medicus* the profession must show that it really values this generous gift. Unless the *Index* finds a hearty support in the profession abroad and especially at home, we can hardly expect the continuance of this unique and invaluable publication. May I earnestly ask, therefore, of this audience of the chief medical authors of the United States that each one will demonstrate his appreciation by an immediate subscription to the *Index Medicus*.

There are some matters common both to the medical college and the hospital which may be considered together. The most important of all these is the cordial and hearty co-operation of the medical men connected with the college or hospital and the boards of trustees. In order to ensure this the members of each body must be acquainted with each other. I have known of instances in which if a professor in the medical school ventured to suggest any changes as to its management, or even to state his opinion as to the qualifications of a candidate for a vacant professorship, his suggestions were resented as an interference instead of being welcomed as a means of valuable information. I take it for granted that we should not offer such suggestions after the fashion of a partisan either of a man or a measure, for the advancement of a friend or to the disadvantage of an enemy, but solely for the good of the institution with which we are connected. He who would endeavor to foist a friend upon an institution *because* he is his friend, and in spite of the fact that a rival is the abler man and better fitted for the position, is just as false to his duty, to his college, or to his hospital, as the trustee who would vote for the less

* The Presidential Address at the Sixth Congress of American Physicians and Surgeons, Washington, May 12, 1903.

† Published from advance sheets of the Transactions of the Sixth Triennial Congress of American Physicians and Surgeons.

desirable man on the ground of personal friendship, or of association in some society, church or other similar body. Of all these influences that arising from membership in the same religious body is, I fear, the most frequent and yet most absolutely indefensible. What one's theological opinions are has no more to do with his qualifications for a professional or hospital appointment than his opinions on protection as against free trade, or whether Bacon or Shakespeare wrote Hamlet.

I have always honored one of a board of trustees, who was an old personal friend of my father's and who had known me from boyhood, yet who in my early professional career, when I asked for his vote for an important hospital appointment, had the manly courage to tell me that he thought a rival, who was older and more experienced, was the better man for the place and that he should, accordingly, vote for him and not for me. I confess it was at the time a bitter disappointment to me, but I never had so high an opinion of my father's friend as after he denied me his vote.

There should be in my opinion but two questions asked in considering the election of either a professor or a hospital physician or surgeon. First, which one of the candidates for the place has the best qualifications from the medical point of view? This should include not only his scientific knowledge, but his ability practically to impart or to apply that knowledge. Secondly, are his personal qualifications and character such as to make him a desirable incumbent of the position. It must be remembered that a man may be scientifically and practically an extremely able man, but of such a quarrelsome disposition or the unfortunate possessor of some other similar personal disqualification as to make him a most undesirable member of a staff. The personal equation may be quite as important as the scientific qualification. Of course, his personal moral character should be above reproach. To place a drunkard or a libertine in a position of so much responsibility and influence is to abuse a trust. No patient should be confided to the care of such a man and still more no such man should be made an instructor of young men, upon whom his influence would be most disastrous.

It is often extremely difficult for a layman to reach a correct conclusion as to the qualifications of medical men for college or hospital appointments, because of the confident, yet conflicting statements of their friends. But there is apt to be a certain clear partisanship in such statements which betrays the purpose of the speaker. Especially will this be so if he advocates the election of A or B on the lower grounds of friendship, social position, or for other similar motives. The man who is advocating the best man because he *is* the best man has the stamp of sincerity upon every word.

Perhaps the most striking example I can adduce of such an unfortunate misjudgment is Dr. S. Weir Mitchell, who was denied a professorship in both the medical institutions of his native city, thus depriving them of the most brilliant medical genius that America has produced within my personal recollection. For him it is now a matter of indifference, and for American literature it has been a gain. But for medicine, and especially for physiology, it was an immense loss. Both of his rivals were estimable, worthy gentlemen who held an honorable position in the profession, it is true, but Mitchell is a genius. "Eclipse was first; the rest were nowhere."

One of the best methods of bringing the medical board and the board of trustees into more intimate contact would be to have the dean or a committee of the faculty, or, in a hospital, if the staff is not too large, the whole staff invited to the meetings of the board. Here I can speak from personal experience. At the Orthopedic Hospital and Infirmary for Nervous Diseases in Philadelphia there are three surgeons and three physicians. These members of the medical staff are invited to meet with the board of managers at each monthly meeting, excepting the annual meeting, when the medical staff is elected. They are free to express their opinions on any topic relating to the management of the hospital to which their judgment may contribute something of value, but when a decision is taken they have no vote. It is purely in an advisory capacity and for the purpose of giving and receiving information that they are present. The plan works exceedingly well. When economy is necessary in the hospital the staff is fully acquainted with the fact and can co-operate with the trustees; when expenses have run up from carelessness in the wasteful use of dressings or appliances, a halt is called; when, alas, very rarely, the treasurer is all smiles, and plans for the extension of the hospital, or the installation of some new addition to the plant is contemplated, their knowledge as to the necessity, for instance, of a hydrotherapeutic or an X-ray plant, or a new operating-room is of the greatest possible value. Nothing but good, in my opinion, can come from such personal co-operation.

One of the difficult questions which boards of trustees have to face is whether there shall be a fixed age at which a college professor or a hospital physician or surgeon shall retire from the active duties of his post. I firmly believe that they should fix such a retiring age in the interest of the students and the patients. As age advances a man's opinions and his practice become "as petrified as his arteries." He is incapable of constant study, of adding to his knowledge or of keeping up with the feverish strides of medicine. He ought then to be relieved of his cares and his duties. If no rule exists he is allowed to continue his inefficient or even disastrous work, or by some harsh suggestion is compelled to give place to another more competent man. A rule is a condition accepted when he is appointed, and just as in the army and navy, when an officer reaches sixty-four or sixty-two years of age he is retired on reduced pay, and because it is a rule he does not feel hurt or humiliated; so in a college or a hospital, when time and the rule bring us to the period when we must gracefully retire, no one's reputation is injured or his feelings lacerated.

I have ascertained that the following rules are in force in some of the larger institutions:

At Harvard the age when a professor may request to be retired is sixty, provided he has been in the service of the university for twenty years, with a reduced pay ranging from one-third to two-thirds of his salary. At sixty-six he may be retired by the President and Fellows partly or wholly. The details of the plan are admirably arranged.

At Chicago, while no plan is yet in force, largely, I presume, because of its recent establishment on the present basis, such a plan will soon be made operative.

At Columbia the retiring age, after fifteen years of service, is sixty-five, either at the request of the professor or upon motion of the trustees, and on half pay.

At Yale the retiring age is sixty-five after twenty-five years of service and on half pay, but the retirement is not compulsory. It will probably be made compulsory before long.

At Cornell the retiring age is seventy, but the Pension Fund will not be available until 1914. The retiring pension will then be $1,500.

At the University of Pennsylvania and at Johns Hopkins no retiring age is fixed.

The only hospitals I know of in which a retiring age is fixed are the Massachusetts General Hospital and

the Boston City Hospital. At the former the compulsory retiring age of the surgeons is sixty-three, and of the physicians sixty-five. At the Boston City Hospital the visiting surgeons are retired at sixty-five, but the physicians, gynecologists, and all the other medical officers continue in service indefinitely—a very curious anomaly.

These varying, but in the main identical provisions when any exist, show the trend of thought and practice. They generally apply to the medical department, except that in case a professor is engaged in the practice of his profession and so has a private income the provision for continuing a portion of his salary does not apply. This is right and fair. Of course, in all hospitals where there are no salaries, no provision as to reduced salary would obtain.

The point I wish to emphasize is, however, that the age limit (which, in my opinion, should be sixty-five) should be *compulsory* and so not be invidious in any given case. It will be objected that not a few men are in full intellectual and physical vigor at sixty-five, and it will be a detriment to the institution to lose their services when their ripe experience and admirable teaching are most desirable. I admit it. But for every one such case of harm done by compelling a man to stop, there are a score of instances of men who are doing vast injury by their inefficiency. Moreover, in the very few cases in which it might be allowable, as boards of trustees make rules they can unmake them, and in special cases they could pay a graceful compliment and preserve to the institution their exceptional men by extending the limit to seventy years. In no case can I think it wise to go beyond this limit.

In some of the universities I have quoted a sabbatical year of rest or study is allowed a professor. He is put upon half pay and his place is filled by a temporary substitute, who receives the other half of his salary. I believe that in present conditions this should not be applied to medical faculties, for nearly all of the professors are in active practice and take sufficiently long summer holidays. These latter are often spent in observation and study abroad—a most useful and remunerative employment of a holiday—and serve the purpose of the sabbatical year for men whose entire time is given to their teaching. In hospitals it certainly should not apply.

One of the recurring questions in hospital and college management is whether there should be a certain number of doctors on the board. I know that there is a wide diversity of opinion upon this point. My own belief is that a small proportion of well chosen medical men is a distinct advantage in such boards of trustees. I have said a "small proportion," for it should not be, I think, larger than probably 20 per cent.; and I also said "well chosen;" that is, they should be men of large mental caliber and executive ability. It should be distinctly understood, if not indeed absolutely expressed, in institutions in large cities at least, that any physician or surgeon placed upon such a board should never be eligible, even by resignation from the board, for a position on the faculty or the medical staff. In small towns the lack of suitable persons for hospital trustees and members of the hospital staff might make it desirable not to institute such a rule.

Moreover, such medical men should be selected for trustees as by their mental training, social relations, and personal character would be, so far as it is possible for human nature to realize such a position, absolutely free from influences arising from personal jealousy or professional bias. If it were a social club it would be perfectly proper to vote against a man because he is personally distasteful, but where it is a scientific body responsible for the education of large numbers of young men and for the care of still larger numbers of hospital patients among the poor, even if a candidate were personally unfriendly I should vote for his election if he were the man best fitted for the place.

Turning now to the duties and responsibilities peculiar to trustees of hospitals, let me point out the objects of a hospital.

First, the care and the cure of the sick and injured; secondly, the education of medical men and medical students; and thirdly, the promotion of knowledge, which, in turn, will inure all over the world to the more speedy and certain cure of the sick and injured, and so be of the greatest benefit to humanity.

In order to accomplish these three purposes, it is necessary that the hospital shall have sufficient funds to purchase ground, erect buildings, and provide a thorough material equipment. It is a great pleasure to me, as to you also, to note that throughout the length and breadth of the land the medical and surgical staff never tax the always inadequate resources of hospitals for any remuneration. They serve without pay, they give ungrudgingly and freely day and night, to the poor often for many years, their time and skill, without ever a thought of any money reward. Their reward comes from increased knowledge and skill, and the daily blessing invoked of heaven, often lisped in children's prayers or breathed in mothers' benisons which pass not unheeded by the Recording Angel.

But, as I have pointed out elsewhere, instead of receiving any pay, they give to hospitals. The mere money value of this daily gift of the profession to the poor amounts to an enormous sum. The value of the professional services of the staff of the Jefferson Medical College Hospital, a single hospital in a single city, on a moderate basis of fees, I found was more than half a million dollars annually. The millions upon millions of money given in that most self-sacrificing form—personal service—by the entire profession all over the United States, and I might add with still further pride, all over the world, is simply incalculable. The Gideon Grays and Weellum MacLures are not found only in Scotland or at the countryside. They are even more plentiful in the slums of our great cities giving of their time, their skill, and what is more, their hearts, their lives, themselves to the service of humanity.

Trustees sometimes seem to take it for granted that their duties are ended when they have done two things: begged or given and safely invested the necessary funds, and then elected the staff. To my mind their duties do not by any means end at this point. They should see to it that the resources of the hospital are utilized to the utmost in doing the largest good.

Let us see now how the objects of a hospital, as I have stated them, can be realized. The first object is the care and cure of the patients. But the cure of any individual patient is not the "be all and the end all" of a hospital. His cure must be a means of larger vision to the doctor, who will thus be better fitted to care for future similar cases. Even his death, if he cannot be cured, should minister to the increasing knowledge and skill of the doctor so that he may be able to snatch future victory from present defeat.

The second—the training of doctors and students—is frequently carried out, but sometimes even objected to. There are three classes of doctors who are trained by a hospital: first, the staff of the hospital itself. I have lived through the period of the establishment of hospitals in many of the smaller cities and towns, and in some cases even villages in this country, for it was a rare thing in my early professional life for any except the larger cities to have hospitals. The moment

that a hospital is established with its medical and surgical staff, that moment a new era has dawned on the *community* in which the hospital is established. More careful methods are introduced, greater cleanliness is observed, hygienic conditions are bettered, laboratory methods are inevitably introduced in time. Even if the old timers who graduated years before our modern laboratory methods were adopted do not care for them or cannot use them, the young fellows who come fresh from our medical schools and serve as residents, and even the nurses graduated from our training-schools, finally shame the older ones into better ways and greater exactness, not only in the hospital, but in their private work as well.

As a consequence of the establishment of these hospitals and the added skill and training of the local physicians and surgeons the character of the consultations of the physicians and surgeons of our great medical centers has been greatly modified. The really simple cases, such as hydrocele and small tumors (and even large ones), clubfoot, harelip, etc., which used to be sent to city consultants, are now successfully operated on by the local surgeons and only the more difficult, serious, or complicated cases are sent to the cities. This is a great advantage to the patient, whose good is the first consideration, and to the local medical men; and though seemingly a serious loss to the city consultant, it is in the end an advantage, as he must prove his better metal in the higher scientific fields and be, as well as seem to be, the better man.

Moreover, the trustees of every hospital should see to it that a good library and laboratory are provided. Insensibly the staff will read more and more. A single restless progressive spirit, even though it be a young interne, calling attention to this case and to that, in one journal or another, will compel the rest of the staff to read in spite of themselves. It is absolutely clear that a laboratory with modern equipment for bacteriological, pathological, and chemical research in its examination of tumors, of the urine, the sputum, the feces, the blood, the pus, and other fluids from wounds, etc., is a necessity in every hospital. Even many of our smaller hospitals are equipped with microscope and reagents if not with a complete bacteriological outfit, which nowadays is inexpensive and imperative. All of this raises the intellectual and professional standard of the staff. I venture to say that no town of 20,000 people can afford to be without its hospital for the sake of its *own citizens*, utterly irrespective of the good it does to the poor who are treated in its wards. It must be established in the interest of the *well-to-do citizens* and their families so that they may secure better equipped doctors for themselves as well as for the patients in their hospital. Self-interest, therefore, will compel every community to establish its hospital, even if charitable motives had no influence.

Again, the trustees of all hospitals of any size should establish a training-school for nurses. Only those who, like myself, have lived in the period before such training-schools were established, can appreciate the vast improvement effected in a hospital by this change. To replace the former ignorant, untrained attendants by "trained nurses whose jaunty caps and pretty uniforms and often winsome faces almost make one half wish to be sick, and when one is sick, half loath to be well," is not only a boon to the patients but to the doctors as well. The intelligent, well-trained nurse, who is on the alert to observe every important change of symptoms and who will keep accurate bedside notes, is the doctor's right hand. Not a few patients who would otherwise lose heart and hope are, one may say, lured back to health and happiness by the tactful attentions and restful but efficient care of such a nurse. The community of the well-to-do also are benefited, because the hospital provides them with skilled nurses in their homes when they are so unfortunate as to be compelled to remain there instead of going to the hospital.

The old repugnance to entering a hospital when sick or when an operation is demanded is rapidly fading away. The immense advantages of a good hospital over the most luxurious home are now acknowledged on all hands. The poorest patient in a hospital is better cared for, his case more carefully investigated by bacteriological, chemical, and clinical methods in a hospital than are the well-to-do in their own homes. Indeed, wise surgeons, except in cases of emergency, now very properly refuse to do operations in homes instead of in hospitals. In many instances lives that would be lost in homes are saved in hospitals, where the many and complex modern appliances for every surgical emergency are provided.

The hospitals in direct or indirect connection with medical schools, however, do a far larger work than merely the training of its own staff of doctors. They train three other classes of doctors: First, the undergraduates who are aspiring to the degree; secondly, graduate physicians who spend a certain amount of time in the hospitals either as internes or as temporary students refurbishing their professional knowledge; and thirdly, experts in certain branches of medicine and surgery.

The undergraduates are taught first in the general clinics, where to some extent they learn both by didactic instruction and by seeing the patients, hearing their histories, and witnessing the institution of proper treatment by prescription, by regimen, or, if necessary, by surgical operation. This is of great value, particularly in the more important cases, and especially, for I speak now as a surgeon, in important operations. It is often objected that students see nothing in large clinics. To some extent this holds good; but no student can look on at an operation when the jugular vein or the lateral sinus is torn, the pleural cavity opened, the bowel lacerated, or other of the great emergencies of surgery occur and fail to be impressed by the coolness of the operator, the carefully explained methods adopted for remedying the mischief, and the various devices used by him to save life, all of which hereafter will be used when similar emergencies may occur.

Yet far more important than the public clinics are the smaller clinics held with classes of 10 to 20 men each, when under an experienced teacher the absolute work of the clinic is divided among the various students in turn, watching the pulse and the respiration, giving an anesthetic, assisting actively at operations, percussing the chest, palpating the abdomen, determining inequalities of the surface or the varying density of underlying organs. Here is the real forum in which our modern medical student acquires his skill. In many cases visits in the ward itself are made, and to a small group around the bedside the physician or surgeon will point out the phenomena to be recorded, the need for the examination of the blood, the results of bacteriological cultures, the facts discovered by the microscope, or the chemical reagent. By the Socratic method also he will reveal to the student the imperfection of his knowledge, call out—e-ducate—his powers of observation, of reasoning; stimulate his thought, and give him an impetus which will last throughout life. Who that has "walked the hospitals" with a Skoda, a Trousseau, a Nélaton, a Da Costa, or a Mitchell can ever forget their teaching?

It is sometimes objected by those who are not familiar with the actual facts, and especially by trustees, that this method of actual bedside instruction does harm to the sick. I speak after an experience of nearly

forty years as a surgeon to a half dozen hospitals and can confidently say that I have never known a *single patient* injured or his chances of recovery lessened by such teaching. Of course, the physician or surgeon uses common sense. He would not allow a number of men to palpate the abdomen of a patient with peritonitis, or move an acutely inflamed joint, nor would the physician allow a patient with pneumonia to have the chest unduly exposed, or a typhoid fever patient disturbed if his condition was such that it would be inadvisable. But such cases are the exception. In fact, many of you are familiar with patients who have responded to repeated percussion by members of such a class by prompt recovery, attributed by the patient to the supposed medication of percussion. Moreover, it is by this actual practice only that the student acquires the necessary skill in the use of modern instruments of precision, such as the stethoscope, the laryngoscope, the esthesiometer, the sphygmomanometer, the various specula. Here he learns when to make blood counts, how to take histories, arrive at the actual facts by skilful cross-questioning, note the varying symptoms and physical signs of a case, determine the need for laboratory investigations, all under the guidance of skilled observers, who will point out his errors, encourage his queries, and stimulate his thought.

Moreover, trustees may overlook one important advantage of a teaching hospital. Who will be least slovenly and careless in his duties, he who prescribes in the solitude of the sick chamber, and operates with two or three assistants only, or he whose every movement is eagerly watched by hundreds of eyes, alert to detect every false step, the omission of an important clinical laboratory investigation, the neglect of the careful examination of the back as well as of the front of the chest, the failure to detect any important physical sign or symptom? Who will be most certain to keep up with the progress of medical science, he who works alone with no one to discover his ignorance; or he who is surrounded by a lot of bright young fellows who have read the last *Lancet*, or the newest *Annals of Surgery*, and can trip him up if he is not abreast of the times? I always feel at the Jefferson Hospital as if I were on the run with a pack of lively dogs at my heels. I cannot afford to have the youngsters familiar with operations, means of investigations or newer methods of treatment of which I am ignorant. I must perforce study, read, catalogue, and remember; or give place to others who will. Students are the best whip and spur I know.

Of the value of training graduates in postgraduate work I need scarcely speak to this audience at least. The doctor who graduated five, ten, or fifteen years ago comes to our great centers of medical education and renews his youth at the fountain of knowledge. He learns the use of all the new instruments, sees new methods of operation, new methods of treatment, new means of diagnosis, and goes home an enormously better equipped man.

The trustees should see that the staff does not become fossilized by following the same ancient local methods from year to year, but should encourage them to visit other hospitals, see other men operate, hear other men discourse on the latest methods of investigation, and then import into their own hospitals all the good found elsewhere. I learn a deal by such frequent visits to the clinics of my brother surgeons, and if one who has grown gray in the service can thus learn, surely the younger men can do so. When we are too old to learn we are too old to remain on a hospital staff.

I do not know anything which has more impressed upon me the enormously rapid progress which surgery is making than a recent experience. I was absent from this country for almost a year and a half. In that time circumstances were such that I saw almost no medical journals and but few doctors. I have been home now eight months and even with incessant work I have not yet caught up, so rapid has been the progress of surgery in this short time. Had I been absent for five years verily I should have been a "back number," and never could have caught up at all.

In his very excellent Presidential address before the Association of American Physicians in 1901, Professor Welch made a plea for hospitals to afford "the requisite opportunities to young men who aim at the higher careers in clinical medicine and surgery." He called attention to the fact that in our bacteriological, pathological, and anatomical laboratories the opportunities, though still too few, were reasonably good, and in a few places exceptionally good, for the training of young men for positions as teachers of anatomy, pathology and bacteriology. Any young man in these departments who by good hard work makes for himself a name is fairly sure, before long, of being called to some important post as a professor, director of a laboratory, or some similar position. But the facilities for work in clinical medicine and clinical surgery are far more restricted, since opportunities for both the exercise of their clinical skill are less frequently open to them and the possibility of combined physiological, pathological, bacteriological and anatomical research along with their clinical work is but scantily provided for. This plea is reinforced by the recent paper of Sir Michael Foster (*Nineteenth Century*, January, 1901, p. 57). These special graduates, bright young men, determined to devote themselves to one or another department of medicine or surgery, are the men who bring honor to the school at which they obtain their training, and are invaluable to the community. They are the future Jenners, Pasteurs, Virchows, Listers, DaCostas and Grosses, and our hospitals should provide for these exceptional men exceptional facilities.

The third object of a hospital is the promotion of knowledge, and so, fourthly, the good of humanity. Physicians and surgeons engaged only in private practice do not generally keep notes of their cases, and rarely publish important contributions to knowledge. I find in 100 books taken consecutively in my library that 85 were written by hospital men and only 15 by authors not connected with any hospital so far as was indicated on the title page.

In order that proper investigations may go on, trustees should enforce a permanent record of all the cases treated in the hospital, properly indexed, from which the staff may derive their data for papers and books. Each large hospital should have its pathological resident as well as the clinical residents in the various wards, so that post-mortem records shall be well kept, pathological, bacteriological and chemical investigations of the various secretions, or blood counts, etc., shall be properly made and permanently recorded in such a manner as to be accessible.

It is too often the case that trustees, as I have said, regard their duties and responsibilities at an end when they have taken care of the funds and elected the staff. They may say that after all this is their real duty, and that all that I have advocated is medical and surgical, and the responsibility for it should devolve on the staff and not on the trustees. I do not take so narrow a view of the duties of trustees. When they have elected a physician or surgeon, if he neglects his duty, it is their business to displace him and fill his place with another man who will attend to his duty, and the duties that I have indicated pertaining to the increase of knowledge as well as of its diffusion are quite as much

within their province as it is to see that the funds are invested to the best advantage. The intellectual funds as well as the invested funds must bring in good dividends.

If trustees and staff work together for such a purpose and in such a manner, they will create an ideal hospital which will do more good to the patients than any other type of hospital. It will attract the best physicians and surgeons in every community, will acquire the best reputation, not only local, but it well may be national, and do the most for the good of science and the benefit of humanity.

It may be said that this is an unduly strenuous view of the duties of trustees, that in our father's day and in our own earlier lives no such conditions existed or were contemplated. "I need hardly ask a body like this," said President Roosevelt in addressing the Methodists assembled in council, "to remember that the greatness of the fathers becomes to the children a shameful thing if they use it only as an excuse for inaction instead of as a spur to effort for noble aims. . . . The instruments with which, and the surroundings in which we work have changed immeasurably from what they were in the days when the rough backwoods preachers ministered to the moral and spiritual needs of their rough backwoods congregations. But if we are to succeed, the spirit in which we do our work must be the same as the spirit in which they did theirs."

Moreover, we must remember that "the world-field into which all nations are coming in free competition by the historical movement to which all narrower policies must sooner or later yield, will be commanded by those races which, in addition to native energy and sagacity, bring the resources of scientific investigation and of thorough education." The international race for the leadership of the world is just as strenuous and intense in medicine as it is in commerce. If we are going to join the race and win the prize there must be the highest development of American education at the top. The best men must be pushed to the front, and ample opportunities for growth, for investigation and for original research must be provided. Never has there been so large an opportunity for the man of large ideas, complete education and indomitable energy and purpose as there is to-day. The world is waiting, looking, longing for him, and will cry "Make room" for him when he is found.

In the hands of the trustees of our colleges and hospitals are the money and the opportunity for developing such men. If the right spirit pervades both trustees and medical faculties and hospital staffs, then it will be but a short time before America will lead the world in medicine as well as she now does in commerce.

Will the profession rise to the level of their great opportunity? Yea, verily they will! Never yet have they been wanting when the emergency arose; not only the emergency of labor, but also the emergency of danger.

In Russia the common soldier counts for little. Yet in Vladikavkaz (where the Dariel Pass—the old Portæ Caspiæ of Herodotus—leading from the Caucasus joins the railroad from Baku on the Caspian to Moscow) is a monument to a common soldier. At the last battle in which the Russians won the victory over Schamyl which gave them undisputed sway over the Caucasus, this soldier blew up a mine and won the day at the cost of his own life. It was ordered that his name should never be erased from the list of his company. At every roll-call when his name is reached, the solemn answer is given, "Died in the service of his country."

In our hospitals lurk the deadly breath of diphtheria, the fatal virus of bubonic plague, of cholera, of yellow fever, of typhus fever, and the ever present danger of blood poisoning. I have known of brother physicians who have died victims to each one of these scourges. Yet who has ever known one of our guild to shrink when danger smote him on the right hand and the left and death barred the way? As brave as the Russian soldier, ready to risk life, and, if need be, to lose it, these martyrs to duty shall never have their names stricken off the honor list, and at the last roll-call the solemn reply shall be, "Died in the service of humanity."

ORIGINAL ARTICLES.

FRACTURE AT THE BASE OF THE SKULL.—NEUROLOGICAL AND MEDICOLEGAL CONSIDERATIONS.*

BY PEARCE BAILEY, M.D.,
OF NEW YORK.

IN thanking you for the great honor you have conferred upon me, and in assuming the direction of the proceedings of this society, I am going to ask you to reconsider a theme old enough for Hippocrates to have written a book about. Old as it is, the story is not all told and will not all be told for many years to come. The main subject is the ultimate clinical effects of traumatic injuries to the brain. But the present observations relate to it only in so far as such injuries have resulted from or been associated with fractures at the base of the skull. I have chosen fracture at the base as the point of departure, because it represents an extreme degree of violence and a certain consistency of type. Whether or not the brain be grossly lacerated, contused or compressed, it cannot fail to be affected in its physical structure by a force sufficient to break its bony case by bursting. Consequently, in spite of the great variety in the extent, severity, and character of the cerebral lesions, in fracture at the base we have a definite index of extreme violence. In it, also, we have a variety of cranial injury of a certain degree of uniformity. This is readily shown by noting the mortality from this injury as shown by large numbers of cases studied at different times by different observers. Heer (*Beiträge f. kl. Chirurgie*, 1892-9) in 58 cases had 29 deaths or a mortality of 50 per cent.; Van Nes (*Deut. Zeitsch. f. Chirurgie*, Bd. 44), in 82 cases had 39 deaths, or a mortality of 47 per cent.† Phelps ("Traumatic Injuries of the Brain," etc., N. Y., 1897), in 286 cases had 176 deaths, or a mortality of 61 per cent.; Dr. R. F. Weir and Dr. W. T. Bull having kindly given me access to their histories at the Roosevelt Hospital, I find that 60 cases were received there during the years 1900 and 1901. By adding to these nine cases, of which I have private records, the resulting total is 68 cases. Of these 40 died, a mortality of 58 per cent.

This comparative uniformity in fractures at the base as death-producing injuries is further carried out by the constancy of clinical symptoms. Thus in Van Nes' 82 cases, in my 68 cases, and

* President's address before the New York Neurological Society, Jan. 6. 1903.
† Percentages are approximate.

in Heer's 58 cases, the various focal signs were distributed as follows:

Optic nerve (amblyopia and amaurosis): Van Nes, 3 cases; present series, 1 case; Heer, 2 cases.

Third nerve (pupillary inequality not counted): Van Nes, 1 case; present series, 5 cases; Heer, 2 cases.

Sixth nerve alone: Van Nes, 0 cases; present series, 1 case; Heer (1 only permanent and this bilateral), 4 cases.

Sixth and seventh nerve: Van Nes, 3 cases; present series, 1 case; Heer, 1 case.

Seventh nerve alone: Van Nes, 10 cases; present series, 9 cases; Heer, 9 cases.

Paralysis of Extremities.—From the uniformity in localizing signs and in mortality that is thus demonstrated, the conclusion is unavoidable that the brain lesions which accompany fracture of the base have a certain constancy. And while the bone lesion is in itself comparatively unimportant, it serves as an excellent index of the degree, direction and character of the violence which affects the brain. It is not within the scope of this address to go into all the symptoms of fracture at the base, but some of the purely neurological ones, especially those bearing on the cranial nerve palsies, may receive brief mention. In considering them it must be remembered that the larger number of the patients are in coma when first examined, and a goodly proportion die within twenty-four hours of the injury. Examinations, therefore, are difficult, and many cranial nerve symptoms, if slight, doubtless pass unrecognized. The cranial nerve palsies are usually multiple, only occasionally there being one nerve alone involved. They come on immediately after the injury, or a few hours after, according as laceration or compression by hemorrhage is the determining cause. The cases in which they do not appear until several days after the injury are difficult of explanation. The hypothesis that they are the results of the nerve being caught and compressed in callus formation hardly seems reasonable, as these late appearing palsies are rarely permanent. Neuritis ascendens in the cranial nerves is frequently referred to, but the condition is unfamiliar to me.

Olfactory Nerve.—Paralysis of this nerve is sometimes the only focal symptom of fracture at the base. Again, it occurs in combination with other cranial nerve palsies. As a rule, however, it is absent.

Optic Nerve.—Injury to this nerve is more frequent, probably, than clinical records indicate. Slight symptoms referable to it readily pass unnoticed in comatose patients, or in those not submitted to special examination. The nerve is almost always affected in front of the chiasm, hemianopic symptoms being rare. Optic nerve disturbances after fracture at the base are most frequently due to involvement in the fracture of the thin walls of the optic canal. Displaced portions of bone may crush and permanently destroy parts of the nerve causing permanent blindness in the corresponding portions of the field. It is probable, also, that ambylopia may be caused by hemorrhages of the base, which push their way into the optic canal, without this latter being fractured.

The type of contraction of the field is not the concentric, as in ordinary atrophies, but rather a loss of the upper, lower or particularly the lateral halves of the field. The visual disturbances are for the most part one-sided, corresponding to the side of the injury, which is usual to the frontal temporal or parietal regions. It is rather difficult to estimate the frequency with which substantial recovery from the initial amblyopia or blindness occurs.

I am inclined to think that ophthalmologists, who most frequently see the cases which have gone on to atrophy and permanent blindness, regard the prognosis in every case as more serious than do surgeons, who see the patients immediately after the injury, and may therefore witness defects in sight which are transient. Knotz (*Wiener med. Presse*, 1900, 30, 31, 35) reports a series of ten clinical cases giving symptoms of fracture at the base and visual disturbance. In half of his cases vision was affected in both eyes, though the eye corresponding to the side of the external injury showed more serious and more permanent symptoms. Of these ten cases, in eight there was amblyopia on the side of the injury, but in only one was the amblyopia permanent. On the side opposite to the injury, amblyopia occurred five times, but was always transitory. In one case there was immediate and permanent blindness on one side. In another there was immediate blindness in both eyes, but vision was perfectly restored in the eye opposite the injury, and on the same side there was left a contraction of the visual field. Of Van Nes' three cases of unilateral opticus injury, immediate one-sided blindness resulted in all. In one death resulted, in another complete restoration in six weeks, in the third optic nerve atrophy.

Traumatic affections of the optic nerve are frequently accompanied by oculomotor palsies and by deafness.

Palsies of the Ocular Muscles.—After the facial, paralysis of the motor nerves of the eye are the commonest focal signs in fracture at the base. If variations in the pupils are considered as belonging to palsies of the motor nerves then these latter are the most frequent focal signs of all. Irrespective of the condition of the pupils, the order of frequency of involvement of the motor nerves of the eye is the third, sixth and fourth. The third is sometimes, though rarely, affected in its entirety. Most frequently its injury shows itself as ptosis, usually unilateral but occasionally bilateral which may occur in association with paralysis of the opposite extremities. Injury to the fourth has been very rarely recorded. It sometimes occurs in conjunction with other cranial nerve palsies, as in a case of Knotz, in which there was total ophthalmoplegia, interna and externa. The sixth is most frequently injured together with the seventh, both commonly being associated

with deafness. The sixth is sometimes, also, injured alone, usually on one side, although bilateral palsies of it have been observed.

The prognosis of these palsies is very good. It is rare for them to persist for more than a few weeks or months as serious disabilities. Usually, in that time, double vision passes away, if it existed, and the eyelid, if there was ptosis, raises itself sufficiently for effective use. In most cases of traumatic ptosis, however, weakness sufficient for identification remains in the eyelid, although the patient may be unconscious of it.

Abnormality of the pupils is the commonest sign of all. Some abnormality existed in 42 per cent. of my 68 cases, the most frequent condition being inequality. In the cases with hemiplegia the larger or dilated pupil was on the side opposite the paralysis of the extremities. It seems probable that, generally, though not always, the dilated pupil corresponds with the side of the greatest brain injury. Certain conditions of the pupil seem also, from my cases, as of particularly grave significance. Of the cases with equally contracted pupils, five died and only one recovered. Of two patients with pupils immobile to light both died. Of three with pupils changing at different times, so that they were contracted at one time and again dilated, presenting alternating myosis and mydriasis, all died.

The Fifth Nerve.—This nerve is rarely, if ever, the seat of isolated traumatic intracranial paralysis, although it is occasionally paralyzed, especially in its sensory distribution, in conjunction with other nerves. The resulting anesthesia affects one or two or all three branches of the nerve.

The Facial Nerve.—This nerve is the most frequent one involved singly in fracture at the base. With Heer it occurred in 17 per cent. of the cases, with Van Nes in 12 per cent., with me 10 per cent. The whole nerve is involved, but most severely in the lower branches; the paralysis is also more apt to be permanent in the lower branches. Sometimes the facial palsy remains as a permanent disfigurement. More frequently, however, it, like the other cranial nerve palsies, is temporary, although it, like the others, usually leaves some trace by which it may be identified by the practised eye. The nerve may be affected at any point in its passage through the petrous portion of the temporal bone. Most frequently, however, it is injured below the branching of the superficial petrosal nerve. When injured at the geniculate ganglion there is paralysis of the soft palate, as occurred in one of my cases. Disturbances of taste are rarely mentioned. When present they are transitory.

Eighth Nerve.—Injuries to the ear itself are so frequent in fractures at the base that the diagnosis of an acusticus lesion is extremely difficult. Deafness is particularly frequent with palsies of the optic, of the sixth and seventh together, and of the seventh alone. It can only be positively identified as of nerve origin when there is nerve deafness, with paralysis of all three branches of the seventh, without disturbances of taste.

Paralysis of the Extremities.—This variety of paralysis exists much more frequently as weakness, or increased rigidity, than as profound loss of power. It usually takes the form of hemiplegia, though monoplegia or even polyplegia, are sometimes seen. Polyplegia seems regularly fatal. With hemiplegia, on the other hand, death is by no means inevitable, as recovery occurs in about one-half the cases. As the patients get better, the hemiplegia rapidly recedes; and as a rule recovery of power and balance is much more complete than is the recovery from hemiplegia of apoplectic origin.

Knee-Jerks.—The knee-jerks are frequently diminished or lost at first. Later they return and become hyperactive or exaggerated. Unilateral exaggeration accompanies hemiplegia. A hyperactivity of the knee-jerks commonly persists for a long time, if it ever goes away. It is rarely associated with coma.

Convulsions.—Convulsions are rare in fractures at the base. In my 68 cases there is no record of them other than a slight twitching in parts the seat of hemiplegia. This infrequency of convulsions is in accord with the statement, to be made a little farther on, that fracture of the base does not appear in the causation of epilepsy.

Mental Symptoms.—Fracture at the base sometimes, although rarely, occurs without loss of consciousness. Occasionally cases are reported in which the injured persons are rendered unconscious for a brief period and then rally, without presenting further symptoms for several days or possibly a week or two, when they die suddenly or develop the symptoms of meningitis. But, as a rule, fracture at the base is synonymous with more or less complete coma, which follows the accident immediately. From the initial unconsciousness a large proportion of the patients who die never emerge. Occasionally the initial coma lessens, the patients regain sufficient consciousness to answer questions, but relapse again into unconsciousness from which there is no further rallying. Profound and persistent coma is an ominous prognostic sign, although I have known it to last a week and still be followed by complete recovery. The most characteristic mental state in these patients is semi-coma or stupor with delirium. In this the patients lie quietly. They resent being disturbed, and if disturbed become resistant and irritable. There is frequently a muttering, hallucinatory delirium, which, especially in alcoholics, may become sufficiently violent, with shouting, screaming, etc., to require restraint. The faculty of attention is nearly always seriously impaired. The patient may be aroused and made to answer questions intelligently, but the attention soon wanders and they relapse again into stupor or delirium. Comprehension of persons and places is disturbed in varying degrees. Headache may or may not be complained of. Some patients recognize their condition and their surroundings; others think they are anywhere but where they are, mistake the doctors and nurses for their friends, or fail to recognize their friends. Sudden impulses, such as to get out of bed, to rush from the room, etc., are very

common. These are often conspicuous in patients who are fairly clear most of the time. They are illustrative of the changeability in symptoms of brain injuries. A patient who at one moment talks rationally and coherently, at the next may be totally irrational and irresponsible. It is a characteristic which should be more thoroughly recognized by those who have to care for these cases. The memory for the period of mental symptoms is always impaired. In the condition known as retrograde amnesia the memory is lost for a period some time prior to the accident. Thus, in one of the cases to be cited later, the patient's mind was a blank from the time he bought a railway ticket until he found himself in an ambulance, although fully half an hour had elapsed between his last recollection and the accident. In another, the memory was imperfect and certain events were entirely obliterated for a period of four days prior to being thrown from a horse. (It should not be forgotten that retrograde amnesia is also found in hysteria.)

The duration of the mental symptoms in patients who recover from fracture of the base is variable in the extreme. Some patients emerge from the initial coma clear and have no further symptoms. Others continue in the condition of semi-coma for days and even weeks. In others the condition persists still longer, so that long after the physical strength is regained there are serious mental anomalies. The following case illustrates the latter condition:

An old gentleman, about January 12, 1902, was caught between two trolley cars, was thrown to the ground and rendered unconscious. He was taken to the Roosevelt Hospital, where I saw him about one week later in consultation with Dr. G. E. Brewer. The patient had been delirious and somewhat noisy since coming to the hospital. After being in the hospital a few days, he suddenly developed paralysis of the right external rectus.

The mental state at the time of my examination was soporific with impulsive tendencies. He lay in bed with the eyes closed, but could answer questions, although the answers were often not pertinent. The impulsive tendencies showed themselves by calling out and shouting, by suddenly trying to get out of bed, etc. These latter symptoms grew worse rather than better, so that the patient deteriorated mentally in spite of physical improvement. He was taken from the hospital in March, but was so irresponsible and uncontrollable that the question of commitment to an institution for the insane came up. On March 17, 1902, I examined him again at his home. He had no recollection of having seen me before, although he said that he knew me perfectly well and that my name was Mr. Brown. He said that he had not been in a hospital at all, but that he had been staying in hotels and thought he had been away on some long journey, although he did not know where. He did not know where he was or what the season of the year was. With this lack of orientation, he would wander about by himself, would break the furniture and smoke incessantly. Physically he seemed perfectly well. With the exception of waking up at night and becoming excited, he slept well. Immediate commitment seemed inadvisable, and soon after this the patient began to improve and in six weeks was perfectly well. His son, writing in January, 1903, says that as far as he can determine his father's intellect is now as good in every way as before the accident.

In February, 1903, the patient came to my office for examination. I could discover no evidences of mental defect or perversion. His memory for the period of time that he was in the hospital and for a few weeks subsequently was imperfect and cloudy, although he remembered seeing me and some of the replies he made to my questions.

This case might be called, and perhaps rightly, one of traumatic insanity. But it only differed from many others of fracture at the base in that the symptoms persisted for an unusual length of time. It seems to me that by a proper classification it would be denominated protracted traumatic delirium. Further into the symptoms of fracture at the base it is not my purpose to enter. The condition of the pulse, the temperature, the evidences which are pathognomonic of defect in the cranium, such as hemorrhages or cerebro-spinal fluid appearing externally are treated extensively in text books on surgery.

Prognosis.—This is to be considered as (*a*) immediate and (*b*) ultimate.

(*a*) *Immediate Prognosis.*—A fatal result is to be looked for in more than half of the cases of fracture at the base. The combined tables of Heer, Van Nes, Phelps and myself, comprising a total of 494 cases, show a mortality of 57 per cent. In this connection it must be stated that some hospital records show a much higher mortality. For example, of 36 cases admitted to the House of Relief in 1900, 33 died, and of 19 cases in 1901, all died. This may be in part explained by the fact that this hospital receives its patients from a section of the city where alcoholism is particularly prevalent, and injuries particularly severe. Also, I understand that the diagnosis of fracture at the base is not made there except distinct brain symptoms are present. Death is, in the great majority of cases of fracture at the base due directly to the injury without intercurrent conditions. Of the 40 fatal cases of my series, 13 died on the day of injury and 12 died on the following day. Thus 62 per cent. of all deaths occurred within one day. Of Heer's 27 deaths, 13 occurred within 24 hours of the injury. Of my other deaths 6 occurred within two days, and 7 in between three and five days. According to these figures, 95 per cent. of the patients who die from fracture at the base do so within five days of the receipt of the injury. Those dying after longer periods usually have pneumonia or meningitis, although this latter condition is infrequent in New York. Age does not seem to be an important feature in prognosis. In my series the average age of those who recovered (4 patients being under ten years) was thirty years, and of

those who died (5 patients being under ten years) twenty-seven years. The immediate prognosis is doubtless influenced by the patient's general condition of health, especially as regards conditions predisposing to pneumonia. I have no statistics on this point further than that two patients known to have had nephritis before the accident, made good surgical recoveries. It seems probable, however, that a healthy man has a better chance of withstanding a brain injury than does an infirm man. Alcoholism effects both immediate and ultimate prognosis profoundly. Alcoholic patients are more apt to die because they are more prone to pneumonia, because their heart action is weak, and because in them delirium is more violent, thus preventing them from resting quietly.

(*b*) *Ultimate Prognosis.*—The ultimate prognosis of paralysis of the cranial nerves and of the limbs has been spoken of when describing these symptoms. The question now to be considered is, what becomes of the patients who survive so severe a brain injury as fracture at the base implies. How, if at all, is their mental life and personality and activity affected? Do they substantially recover and return to their former businesses or vocations? Are they invalided and if so, how? Can insanity be looked for as a legitimate outcome, and do the patients, once surgical, become wards of the state as insane or epileptic? Literature which might answer these questions is not voluminous. Yet, from two points of view at least, some answer is desirable. First, because by it our conceptions as to how the brain reacts to traumata may be made clearer and grounds for accepting or declining to accept trauma as a cause of a variety of nervous diseases more firmly established. The second reason is medicolegal. In these days of mechanical equivalents and personal injury claims fracture at the base is a frequent subject of litigation. The medical witness is asked what the future prospects are for a plaintiff who, one or two years before, sustained such an injury. The broadest of generalities are frequently given as replies.

I have been able to obtain the subsequent histories of fifteen of the twenty-nine patients of my series who did not die, and offer them now for such light as they may shed on the question. A diligent search was made for the other fourteen patients, but they had never been known at the addresses which were given in at the hospital.

In all the cases except one the accident preceded this report by practically one year or more. The first seven are from the Roosevelt Hospital; the last seven from my private records:

Case I.—Boy, aged seven years; admitted April 20, 1901; discharged April 24. Now goes to school. Is slightly more irritable than formerly and often becomes boisterous and uncontrollable. Has had no convulsive attacks.

Case II.—Man, aged forty-eight years; admitted Nov. 17, 1900; discharged Nov. 19, 1900. Increased irritability is the only symptom at present. No fits nor indications of insanity.

Case III.—Man, aged thirty years; admitted Sept. 16, 1900; discharged Sept. 19, 1900. No symptoms noted. Moved from last address without paying rent.

Case IV.—Boy, aged five years; admitted Sept. 29, 1901; discharged Oct. 4, 1901. Since the accident this boy has been more nervous and irritable than formerly. Is subject to headaches. Has had neither fainting, dizzy, nor convulsive attacks.

Case V.—Man, twenty-seven years; admitted Nov. 12, 1900; discharged Dec. 5, 1900. This patient came from an ancestry of marked neurotic taint. Before the accident he had had an attack of pulmonary tuberculosis. From boyhood he had also suffered from the morbid fears characteristic of cerebral neurasthenia (Regis). About nine months after leaving the hospital he developed anew symptoms of pulmonary trouble from which he is now again recovering. The morbid fears are more pronounced than they used to be. But they always became worse when he was physically run down, so that the tuberculosis is perhaps as much or more responsible for them than the brain injury. Aside from the morbid fears, there are no other mental symptoms whatsoever. The patient sleeps well, has no attacks nor headaches.

Case VI.—Man, aged thirty-eight years; admitted Dec. 2, 1901; discharged Dec. 21, 1901. No symptoms noted since the accident.

Case VII.—Girl, aged thirteen years; admitted Dec. 14, 1901; discharged Dec. 21, 1901. Never had any symptoms since the accident. Goes to school.

In the following seven cases the notes are somewhat fuller:

Case VIII.—Young man of twenty-six years, thrown from his horse on his head in August, 1900. Lay in semi-coma, from which he could be partially and momentarily aroused, for twelve days. At this time in addition to other symptoms he presented a right-sided ptosis, with the left pupil larger than the right, and with paresis of the left side of the face. The knee-jerks were active. This patient made an excellent recovery. He has been examined at frequent intervals since the accident to the present time. The cranial nerve symptoms have not entirely disappeared. There is still a slight right ptosis, and the face, on close scrutiny, shows unequal innervation. The pupils are now equal, but the knee-jerks remain active, the right being somewhat more so than the left. When the patient recovered consciousness twelve days after he was hurt, it soon became apparent that he not only had no memory for the time that he was in coma, but that he had imperfect or no recollection or retrograde amnesia for events which preceded the accident. This retrograde amnesia covered a period of four days. Where he was, or what he did, on those days, he was unable to tell. During his convalescence he walked to the stable, and seeing a new runabout, asked whose it was. He had bought it himself, and had driven in it four days before the accident. For this period of time he never regained memory. At the present writing, the

mental state of this patient is as good as ever. He has had neither headaches nor epileptic attacks, nor has his character undergone any noticeable change.

Case IX.—A lady, fifty years of age, was thrown from her carriage in August, 1901. Characteristic symptoms of fracture at the base, with profound coma for one week, from which she emerged gradually. My examination made nearly two weeks after the accident, showed, left third N. palsy, deafness on the left side, a slight left hemiplegia, thickness of speech and a confusional stuporous mental state.

Reexamined in Dec., 1902, in the presence of Dr. A. E. M. Purdy, with whom I first saw her, the only traces of the injury were, a slightly drooping left lid, hyperactive, but equal, knee-jerks, and a slight uncertainty in the muscular movements of the left foot. Subjectively the recovery was perfect with the single exception that she complained of peculiar feelings at times in the top of the head. No headache. The double vision passed away in a few months and never returned. She has had no attacks of any kind, and her husband declared that there had been no change whatever in her character, disposition or personality.

Case X.—A patient, alcoholic and suffering from nephritis, was found unconscious in the street in Jan., 1902. He was supposed to have had a stroke of apoplexy, but as he later developed bleeding from the nose and subconjunctival ecchymoses, and as he never presented any focal signs whatsoever, there is little doubt that he had a fracture at the base. He made a gradual recovery. Dr. Cyrus Edson with whom I saw him in consultation, kindly sends me the following report of his present condition. "He has never been the same as before the accident. He is apathetic and his mentality is sluggish. He cannot concentrate his mind on any subject for more than an instant. He is able to go about, but seems to have lost ability to perform any but the simplest duties of life. His mental balance is good. He has no delusions, nor anything of that kind. Physically, he is deteriorating slowly but surely."

Case XI.—A young man who was taken from the wreck on the New York Central Railroad in the Park Avenue Tunnel on Jan. 8, 1902. He was stuporous and delirious for a few days. The physical signs consisted of enlargement of the left pupil, paresis of the lower branches of the left facial nerve, and of the branch to the soft palate (N. pertrosal, superfic.). Slight deafness in left ear, and feeble knee-jerks. Subsequent examinations of this patient in November, 1902, and at Utica, in December, 1902, where his suit against the railroad was tried, showed a persistence, though in much less degree, of the cranial nerve symptoms. The knee-jerks had become hyperactive. The patient's general condition was that of profound traumatic neurasthenia. He had done no work since the accident, and had been the prey of numerous subjective symptoms. Conspicuous among them were irritable heart, insomnia, loss of weight, failure of attention, and great fatigue on all exertion. These symptoms may have been partly due to the suspense incidental to litigation. But I am convinced that the patient, if he exaggerated them, did so involuntarily and unconsciously. This patient also had retrograde amnesia. The last thing he remembers prior to the accident was getting on the train at New Rochelle. The journey to the city is a blank to him. There were also some periods of his life, months and years before the accident, about which he had lost all recollection.

Case XII.—A man, fifty years of age, suffering from chronic nephritis, was run into by a car in July, 1902. He immediately developed left hemiplegia, which improved at first and then deepened. When seen, two days after the accident, it was complete, involving face, tongue and leg. There was stupor from which the patient could be sufficiently aroused to answer questions. He improved slowly and returned to his home in the South. From his wife I have recently learned that his mentality and disposition have been entirely the same as before the accident. He sleeps well, and has no more headaches than before the accident. No convulsions nor dizziness. The hemiplegia persists, although it has improved considerably. The arm has regained but little power and the patient can only walk a short distance. He has given up his active business, but does legal office work. In this case the period of time since the accident, six months, is too short to permit positive conclusions.

Case XIII.—A boy, aged eight years, was run over by a heavy wagon. The resulting unconsciousness lasted four to five days. There was bleeding from both ears. I examined him twice. once five years and once seven years after the accident. Both examinations gave practically the same results, namely, a right peripheral facial palsy, involving all three branches with considerable deformity. There was deafness in the right ear with loss of bone conduction.

The parents maintain that the boy's character has changed materially in the seven years since the accident. He is generally bad tempered and gets in violent passions. He is worse in hot weather. He is hard to manage, and is constantly fighting. He gets up out of bed at night and wanders about the house. He has had no epileptic attacks and no illnesses since the accident.

Case XIV.—Boy, seven years of age, of neurotic taint and himself peculiar, in Feb., 1900, fell two stories. There resulted unconsciousness for 36 hours, with bleeding from the right ear. General recovery occurred in a week, but there remained a palsy of right sixth nerve (double vision) and of right facial nerve, and some deafness on right side. The superior branch of the latter was only slightly affected. From the cranial nerve palsies and the deafness, the recovery was perfect, and in Jan., 1903, Dr. W. B. Anderton, his physician, tells me that the boy is as well in every way as before the accident, that he goes to school, where his reports are satisfactory.

To these cases, eight in number, including the one given in the early part of this article, may be added some statistics of Bullard (*Boston Med. and Surg. Journal*, 1897, Vol. 136), who obtained the after histories of 19 cases of fracture of the base. Of these, 16 made apparently perfect ultimate recoveries. In two patients who were alcoholic, there was a greatly increased susceptibility to alcohol, and symptoms of irritability and violence. In one case, a school boy was reported as being unable to learn since the injury.

While the data now at our disposal is inadequate for too hard and fast deductions, it furnishes facts enough for certain general conclusions as to the results upon the mental life of those who survive so severe a brain commotion or injury as is implied by a fracture at the base of the skull. We are in the position to say, at the outset, that recovery, in the sense that the patient becomes as well as he was before the accident may be looked for in the majority of survivors within a year. In certain of these patients retrograde amnesia, or loss of memory for certain definite periods of time prior to the accident, is permanent; others complain that they do not remember proper names as well as formerly. In a certain small proportion of cases, on the other hand, the patients are left with changes in disposition and character. Such changes, while they do not attain a degree worthy of the name insanity, and while they do not prevent the patient from pursuing his customary vocations, are none the less distinct obstacles to material success. They show themselves, as irritability, quarrelsomeness, fits of anger, spitefulness, etc. They are sometimes associated with restlessness at night or insomnia. As Bullard has emphasized, and as I have observed, such symptoms are particularly frequent in alcoholics; and a very constant consequence of general head injuries is a lessened resistance to alcohol. Periodic headaches may also occur in such cases, or even in cases without other symptoms, though they are not particularly frequent. In addition to these changes in character, some patients show a blunting in all the intellectual faculties, which is usually observed as a direct sequence to the injury. They show defects in memory, in concentration and in behavior, which in children might be called feeble mindedness and in adults mild dementia. In the only case in a child of which I have a record (not mentioned in above series) these symptoms persisted for several months, and then the child became as intelligent and bright as before the accident. Such a mental state is particularly apt to occur in the alcoholic and in persons suffering from diseases in which the arteries share. Thus in one of the above series, a man suffering from alcoholism and Bright's disease has never regained mental powers. But in adults, as in children, such mental states may improve. Thus in a case described several years ago (Accident and Injury; Their Relations to Diseases of the Nervous System, N. Y., 1898) a patient sustained a fracture at the base, with left hemiplegia and ptosis on the right side. The physical symptoms disappeared in a few weeks, but the patient remained slovenly, unable to care for himself, to talk intelligently or to understand what was said to him. He was seriously demented. After a few months these symptoms also passed away to a great extent. The patient's mind cleared sufficiently for him to leave the almshouse, from which time he has been lost to view.

It is not safe to give a bad prognosis as to the ultimate mental state in these cases too early. After severe injuries a year at least is necessary for full restoration, and a bad prognosis given before that period may easily prove erroneous.

The characteristic mental state of traumatic neurasthenia may also result from fracture at the base. But whether this is exclusively the result of the physical injury, or whether it differs in its prognosis from traumatic neurasthenia of different origins, it is very difficult to say.

As convulsions play so minor a rôle in the acute symptoms of fracture at the base, we would hardly expect epilepsy to be a consequence of that injury, and it does not seem to be one. The statistics of the Craig Colony for Epileptics show that of the 826 cases at that institution under the supervision of Dr. W. P. Spratling, in only one is there any suggestion of a fracture at the base. In this case the history was entirely inadequate for a diagnosis of such an injury.

The question as it relates to insanity is, in the speaker's opinion, the most important one involved, bearing, as it does, upon the causal relationship between head injuries in general and mental diseases. Such a relationship is a frequent source of argument in psychiatry, in legal medicine, and in social life. But the merits of the question are difficult to determine. To collect from the wards of hospitals for the insane all the cases in which trauma capitis is advanced as a cause, and to utilize them as evidence for a traumatic origin of insanity would be misleading in the extreme. The families and friends of insane patients are ever eager to avoid the stigma of inheritance and to advance accidents, no matter how trivial, as causes of the mental disease. Histories obtained from the patients themselves are manifestly unreliable. This is particularly true for a disease for which trauma has been advanced as a cause more than for any other—general paresis. This disease is characterized by epileptic tendencies, by mental excitability and inattention which predispose to accidents of all kinds. Therefore, in spite of the many monographs which have been devoted to its traumatic origin, it has never been conclusively demonstrated that it can be the result of trauma capitis.

Is fracture at the base a cause of insanity? From the cases which have been cited in this paper it is plain that the characteristic mental state associated with fracture at the base is delirium and that this delirium does not ordinarily persist longer than one, or perhaps a few weeks. In one case it lasted longer, namely, nearly three months. But the symptoms remaining of the same type throughout and ending in perfect recovery, that case was reported as one of protracted delirium,

rather than insanity. Insanity defies definition and the classification of mental diseases is the bane of alienists. But traumatic insanity should evidently be limited to such cases as are different in symptoms from the ordinary traumatic delirium, or to those in which the delirium is permanent or existent for an extraordinary length of time, or to those in which there is an interval between early symptoms and late ones. In none of the cases observed by me were these conditions fulfilled. In the following case which is an extremely rare one, they were fulfilled, partially at least, and the case may be considered as an example of a psychosis developing subsquent to early delirium.

I am indebted to Dr. H. S. Noble, Superintendent of the State Hospital at Middletown, Conn., for the history of this case. E. N. B., born in this country, of American parents; occupation that of a painter; married; aged forty-six years; admitted to the hospital May 21, 1891; duration of insanity six months; alleged cause, traumatism. The patient is 5¾ feet in height, with black hair and gray eyes. Has drank moderately for some years. The present attack, which is his first, resulted from an injury received nearly six months ago. As he was coming down the stairs from the paint-shop belonging to the hospital, where he was at the time employed, he made a misstep when near the top of the stairs and fell headlong to the bottom. He was picked up in an unconscious condition and carried to one of the cottages near by, where he lay confined to his bed for several weeks. At the time of the injury he bled profusely from the left ear for some hours and was quite restless, thrashing about and trying to get out of bed. He suffered extremely from headache and intolerance of light, and after consciousness was partially restored he was delirious for several weeks. As he gained strength and began to go about, his mind gave evidence of serious impairment. The expression of the face was changed and he was easily confused and bewildered, wandered about the city and neighborhood without special purpose, and often did not return home till late in the evening. He was irritable and fretful and abusive to his family, accusing his wife of having been unfaithful to him and on several occasions he threatened her. His malady was increasing and without lucid intervals or remissions. Although on one or two occasions when under the influence of anger he threatened to drown himself, he nevertheless was not regarded as suicidal, nor was he destructive or filthy.

May 30, 1891. Has thus far been quiet, cheerful and contented. Seems slightly elated, but has expressed no delusions. Meets his wife pleasantly and cordially when she calls upon him.

June 1, 1891. Is a trifle loquacious and shows an emotional instability. Consciousness is clear and he is completely oriented. Memory is unimpaired for both recent and remote events.

July 27, 1891. Is given limited parole on the grounds, as he is now able to control his emotions much better than at first. Judgment is somewhat faulty and his capacity for mental work is diminished.

Sept. 1, 1891. Is at present in a fairly comfortable condition, but he still shows some mental impairment, is a trifle silly, and self-control is lacking. Taken home by his son on trial.

Absent thirty-eight days.

Oct. 9, 1891. Brought back this evening with the corroborated report that he is no longer fit to be at large. He wanders about the streets constantly, drinking in the saloons, and is unable to fix his mind upon any kind of occupation. He is extremely irritable and abusive to his wife and accuses her of having been unfaithful to him. Has occasionally threatened violence to members of his family.

Oct. 12, 1891. Is quiet and orderly.

Dec. 4, 1891. Controls himself very well, but is at times irritable, faultfinding, and suspicious when speaking of his family. Complains of headache occasionally. Petition for appointment of conservator received and filed with commitment.

Jan. 5, 1892. Condition substantially the same as last noted. Bodily health very well maintained. Appetite good and sleep at night undisturbed.

Feb. 10, 1892. Mental symptoms somewhat improved. Is amiable, cheerful and no longer expresses suspicions regarding his family.

March 28, 1892. Continues to improve and is at present very comfortable mentally. Headache troubles him scarcely at all. Capacity and inclination for employment increased. Manifests an insight into his condition.

April 5, 1892. Is given parole of the grounds. Quiet, cheerful and amiable, but a trifle silly. Shows some impairment of *intellect* and *judgment*, and is emotionally unstable. There is no paralysis, paresis, or perverted sensations. Tone of feeling buoyant. Special senses unimpaired. Gait, station and coordination normal. Reflexes not examined. Sleep natural; no dreams.

April 23, 1892. Discharged improved.

April 6, 1893. Returned to the service of the hospital as a painter, having spent the time since his discharge as a patient at home and has busied himself about his house and garden the greater part of the time.

At the present date (Jan. 5, 1903), he is still employed at the hospital, having worked steadily since his return in April, 1893. There is still a slight degree of dementia manifest as evidenced by the dull comprehension, impaired judgment, diminished capacity for work and slight emotional instability.

This case being opposed to any in my experience, both personal and in literary research, it occurred to me that further light might be thrown on fracture at the base as an insanity causing injury by inquiry in the large hospitals for the insane. In response to a request from me, Dr. A. E. Macdonald, Superintendent of the Manhattan State Hospital, East, very kindly had

the patients under his care investigated with a view to ascertaining a definite history of fracture at the base. Of more than 2,000 patients under his charge, over three-fourths of whom are men, in no case is there history or evidence of fracture at the base. It may be said, incidentally, that there are but two cases of fracture of the vault. In one patient, depressed, hypochondriacal and controlled by hallucinations of hearing, the symptoms developed eighteen months after injury; in another, probably paranoia, nine years after the injury. It is probable that the percentage of one person in one thousand, as shown at Manhattan State Hospital, East, is not greatly in excess of the percentage of skull fracture, of both vault and base, in the general population. The Central Islip branch of the Manhattan State Hospital is chiefly a service of chronic cases, most of the patients, about 3,000 in number, whose insanity is of long standing, having passed through the Ward's Island institutions. Histories in these cases are consequently somewhat indefinite. Dr. C. A. Smith, Superintendent of the hospital, has kindly sent me the following résumé of the cases in which trauma figures:

Total number of cases with traumatic history.....	14
Number of cases with no external evidence of injury	8
Number of cases with scars or depressions over vault	6

In none of the cases is it possible to make a diagnosis of fracture at the base.

As there is no reason to suppose that the mortality in persons who survive the acute symptoms attendant upon fracture of the base is particularly high, and as the majority of such persons are of the the indigent class, who would be obliged to go to the State Hospital for their district did they become insane, I think we may conclude, with considerable certainty, from the total absence of such cases in the State hospitals that fracture at the base, with its attendant brain injury, is an entirely negligible quantity in the etiology of disabling insanity. This opinion is further strengthened by the records of Bloomingdale, which receives a more prosperous class of the community. Dr. S. B. Lyon, Superintendent of Bloomingdale, has kindly gone over the records of that institution (census between 200 and 300), anent this question, and has informed me that at present there is one case of paresis there in which the diagnosis fracture at the base was made a short time before admission to Bloomingdale. But there is good reason to suppose, in this case, that paretic symptoms preceded the injury. The only other case on the records was that of an alcoholic man, who, two days after being picked up unconscious on the street, was committed to Bloomingdale, where he died in ten days. The autopsy showed fracture at the base. This was a case of delirium, probably alcoholic, and not to be classed as insanity.

The fact is that these institutions contain no cases of mental disease or dementia in which the history of fracture at the base is of great significance. It seems reasonable to suppose that if fracture at the base figured prominently in the etiology of insanity or dementia, some of the patients would be found in the asylums. The injury itself is very frequent. From the two hospitals, Roosevelt and the House of Relief, in the two years, 1900 and 1901, there were reported 115 cases of fracture of the base of the skull—an average of fifty-seven a year from two moderate-sized hospitals. If the records of Bellevue Hospital and of all the many others with ambulance services were accessible, I think probably we would find that an estimate of 500 cases of this injury every year was not excessive. Assuming this number as approximately correct, and assuming a mortality of 60 per cent. or even of 70 per cent. to be well within the limits of safety, we would have 150 cases a year of persons discharged from hospitals with fractures at the base. If insanity were a legitimate consequence of such an injury, we would be certain, in view of the class of persons who receive such injuries, to find some of them in the asylums of the Borough of Manhattan.

It would seem, therefore, that fracture at the base is an entirely unimportant cause of mental states which make commitment necessary or which render the patients incapable of earning their livelihoods. From this condition it is not proposed to generalize too freely. Fractures at the base can hardly be compared to those of the vault with the direct involvment of the cortex in the latter. The effects of cortical injuries in the etiology of insanity will be considered in a later paper. But it seems justifiable to apply such conclusions as we have arrived at in regard to the ultimate results of fracture at the base to the ultimate results from simple concussions of the brain.

52 West Fifty-third Street.

NOTES ON BLOOD PRESSURE IN MAN.*†

BY S. S. GOLDWATER, M.D.,
OF NEW YORK.

VON BASCH, summing up in 1887 the published results of clinical observations made by means of his sphygmomanometer, asserted that a clinical history which did not include an account of blood-pressure, was incomplete. This dictum will meet with the ready assent of those who have familiarized themselves with the literature of arterial tension. Nevertheless it is distinctly misleading to thrust a blood-pressure instrument into the hands of the practitioner, if one does not couple with the recommendation that it be used in practice, a warning as to the conditions of its use. An understanding of physiological variations of pressure necessarily precedes all efforts to comprehend the nature and the causes of variations of pressure which are pathological.

There has been a steady advance toward efficiency and simplicity in the blood-pressure appa-

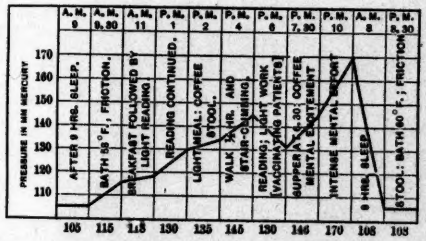
* This essay was awarded the William T. Lusk Memorial Science Prize by the faculty of the University and Bellevue Hospital Medical College, 1901.
† From the University and Bellevue Hospital Medical College.

ratus offered for clinical use. The instruments of Mosso, Huerthle, von Frey, Potain, Oliver, von Basch, Hill and Barnard, Riva-Rocci and Gaertner, are well known. For a description of these appliances reference may be made to original sources; and to facilitate such reference a bibliography is appended. The present writer's observations were made by means of the tonometer of Gaertner.

Except where otherwise stated, the writer's experiments were made upon persons in the sitting posture. The subject's hands were placed on a table, approximately at the level of the apex of the heart. This element of technic is important in the interpretation of the absolute value of the pressures shown, but has no significance in relation to pressure fluctuations, because a single method was adhered to in the study of each case. The necessity for following this plan will be shown in the subsequent discussion of the influence of position on pressure.

Normal Pressure Curves.—Before proceeding to a discussion of the various influences that are capable of materially affecting blood-pressure, it will be worth while to plot the pressures in a normal case, shown by the tonometer at various intervals during twenty-four hours.

CHART A.

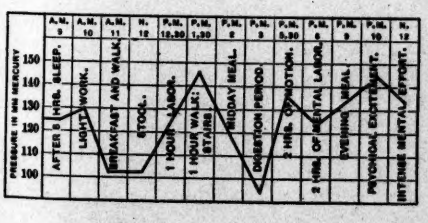


Sitting posture, hand on table at level of heart; no complete rest after meals. Intervals of time not otherwise specified, occupied by light reading.

M. H.: Medical student, age 27; organs normal.

For purposes of comparison a second curve of normal pressure is presented, as shown by the tonometer in experiments by Weiss.

CHART B.



In each of the preceding instances the subject of the experiment, so far as could be observed, was entirely tranquil except where otherwise noted. The variations in pressure are such as occur normally from day to day in any individual in like circumstances. As will be shown elsewhere in this article, fluctuations in blood-pressure which are essentially physiological, are more or less accentuated in neuropathic and impressible individuals, and especially in children of neurotic tendency.

Effects of Eating.—The fall of pressure which occurs during the digestion period, according to the chart of Weiss, is not confirmed by the writer's experiments, nor by those of other observers. Gumprecht's experiments show an average rise of pressure averaging 20 mm. of mercury, after the chief meal of the day. Jellinek, in 20 cases, found after meals in every instance an accelerated pulse, and he presents the following summary of his experiments: 14 cases, increase of pressure, 10 to 60 mm.; 4 cases, no appreciable change; 2 cases, blood-pressure decreased.

That the question is not a simple one is seen when one takes into account such disturbing elements as the use of stimulating foods, the ingestion of considerable quantities of warm fluids and the "periodic rise" which so frequently occurs during the afternoon and which is independent of the taking of food. (Broadbent, in his work on the pulse, mentions warm food as one of the causes of low tension.) Substantially, however, the two curves which are presented as representative of the work of two investigators, Weiss in Europe and the present writer in America, will be found to be consistent with each other and with the principles governing physiological fluctuations in tension. There may be some value in the suggestion that if the American chart does not present anything corresponding to the low-tension digestion-period of the German, it is because Americans devote no distinct period to digestion and repose.

Normal Blood-Pressure as Commonly Found.—Discussion of the special physiological and pathological conditions which influence arterial tension, will be preceded by a brief presentation of the general limits of tension, high and low, as they commonly are found.

The first twenty figures recorded in the writer's experiments show the following pressures in normal adults in a condition of tranquillity, in mid-afternoon hours. (The sitting posture obtained, as hereinbefore described. The figures represent mm. of mercury.)

Men: 136 115 125 124 124 134 100 105 104 122 114 128.

Women: 124 128 122 107 112 115 127 132

These figures may be compared with those of Gaertner, who after a vast number of tests, states that normal blood-pressure, as registered by the tonometer, is from 100 to 130 mm. Grebner, with the same instrument, found normal blood-pressure to fluctuate between 110 and 130 mm.; while Weiss's (tonometer) averages are, for men, 90 to 120 mm., for women, 80 to 100, the figures of Weiss representing tests made on patients tranquil and recumbent, the hand at the level of the heart.

These figures show a somewhat greater consistency than those of a similar series of observations by von Basch and other users of the sphyg-

momanometer. The figures given by these experimenters relate to the radial artery, unless otherwise specified:*

von Basch (temporal artery)	110 to 160 mm.
Zadek	70 " 150 "
Federn	80 " 100 "
Christeller	70 " 150 "

Influence of Unaccustomed Rest.—In experiments of this sort all the conditions are to be taken into consideration. Gumprecht, for example, using the Riva-Rocci apparatus, established 140 mm. as the average pressure in the healthy male adult. In hard-working laborers, however, he found a considerably higher pressure to obtain, pressures of 160 to 200 mm. constantly being found among men of this class in the absence of any demonstrable arterial or cardiac change. But when tests were made on laborers during their residence in a hospital, the average was found to be considerably less than when similar tests were made outside. Further investigation established the fact that laborers showed a considerable lowering of pressure during their first days in a hospital or elsewhere under conditions of unaccustomed rest and ease.

The fact just stated is especially to be remembered and allowed for by those who use the tonometer in hospital practice. As the rest afforded under these circumstances may be the chief factor in bringing about the disappearance of a dangerously high pressure, an estimate of its influence should be made before discharging a patient in whom the maintenance of low tension is important; too much reliance should not be placed on the power of other therapeutic means to accomplish this end unassisted.

Pressure Taken Directly in Amputation Cases.—Before dismissing the subject of normal pressure, it is worth while to recall the direct measurements of intra-arterial tension in the human subject, made as long ago as 1856, in amputation cases, by Faivre. In the femoral artery pressure was ascertained to be equal to 120 mm. mercury. In another instance brachial tension was directly measured and found to be 110 mm. Similar observations were made in 1882 by Albert, who in a case of amputation of the lower extremity was able to connect a mercury column with the anterior tibial artery, where a pressure varying from 100 to 160 mm. was found. A variation of 40 mm. was produced by the passive raising of the body from the horizontal to the vertical position.

Extremes of Tension.—What are the extremes of arterial tension consistent with life?

The highest recorded pressure is in a case observed by Weiss, who gives the following series of figures obtained in examinations made in rapid succession: 280, 245, 245, 255 mm. (tonometer). In this case vomiting and uremic convulsions occurred shortly after the above pressures were recorded.

Next in order is a case observed by the present writer. The subject, a Bellevue Hospital patient (J. G.), had a hypertrophied heart, but showed no trace of albuminuria. In this case aneurism was suspected and observations were therefore made on both sides of the body. The results were: Right hand, 240, 245 mm.; left hand, 205, 205 mm. This patient had been resting in the hospital for several weeks, and at the time of the tonometer tests was experiencing no particular distress. He was receiving tinct. strophanthus, 10 minims, t.i.d.

Gaertner records a case in which pressure was 240 mm.; and Fraenkel mentions a patient with arteriosclerosis and chronic nephritis, in whom pressure was persistently 220 mm.

The prognosis in persistent high pressure of an extreme grade depends to a certain extent on the cause; but the condition is always to be regarded as a grave one, and the necessity for prompt relief must be recognized.

Although it is no easy matter to determine the lowest pressure consistent with life, efforts have been made to do so. Christeller and Kapsamer have been particularly fortunate in obtaining material for observations in this direction. The latter names 60 mm. (tonometer) as the lowest pressure compatible with continued existence, while Christeller (sphygmomanometer) found, in the critical period of severe fevers, pressures between 40 and 50 mm.

Kapsamer cites the case of a woman who fell from a second-story window and who, after a brief period of unconsciousness, apparently recovered with no indication of her mishap beyond a few bruises. Her pulse seemed to be normal. The tonometer, however, revealed the gravity of her condition by indicating that digital blood-pressure was but 40 mm. This condition of extreme low tension persisted for thirteen hours, when the woman succumbed. In other cases observed by the same writer pressure following operation under anesthesia fell below 60 mm., and in every instance the death of the patient speedily followed.

Blood-Pressure During Pregnancy.—The so-called cardiac hypertrophy of pregnancy, with its accompaniment of high arterial tension, is a phenomenon which is frequently referred to in clinical and physiological teaching. Broadbent accepts the theory of high tension in pregnancy, and ascribes it to increased arteriocapillary resistance. That high arterial tension exists in many cases of pregnancy is probable; but that the former condition is a necessary consequence of the latter, is extremely improbable.

In most text-books of obstetrics the subject is discussed in a manner which is far from enlightening to the medical student. In Dorland's "Manual" one finds the following fairly typical statement: "The amount of the circulating fluid in the vessels of the body (during pregnancy) increases while its quality decreases; in other words there is a combined hydremia and anemia. In proportion as the red blood corpuscles diminish the white blood corpuscles increase in quantity, and the amount of fibrinogen increases so that the blood shows a greater tendency to clot.

*Tigerstedt places the unavoidable errors of the von Basch method between 32 and 78 mm.

The increase in the total amount of blood causes a corresponding increase in arterial tension and imposes an additional strain on the heart; consequently there is soon produced a condition of hypertrophy and dilatation of the left ventricle, which, in moderate degree, should be regarded as normal during gestation." Although changes in the quality of the blood are here specifically referred to, the supposed high tension is ascribed merely to the increased quantity of circulating fluid.

Aside from the hydremia to which Dorland refers, interference with the eliminative functions of the body (constipation, albuminuria, etc.) would have to be taken into consideration in any attempt to explain rationally an increased pressure within the arteries of the body during gestation, not to speak of changes in the mental and nervous condition of the patient, and of relatively imperfect oxidation due, in some cases, to lack of exercise. The value of some of these influences is made plain in subsequent sections of this paper.

That the whole question of the "high arterial tension of pregnancy" will bear further investigation, is shown by the fact that in a series of examinations made by the writer at the Mothers' and Babies' Hospital and at the dispensary of the University and Bellevue Hospital Medical College, the tonometer failed to show that arterial tension is any higher in pregnant than in non-pregnant women. The figures which follow represent eleven cases, four primiparæ and seven mulitparæ, all of them advanced beyond the thirtieth week of pregnancy:

Primiparæ: 127 115 132 118.
Multiparæ: 112 107 115 122 113 123 111.

The women examined were under thirty years of age, had normal kidneys, and were in the habit of performing a certain amount of daily work requiring mild physical exercise.

In one case only was pressure found to be in any considerable degree above normal. Here the tonometer recorded 185 mm., and the suspicion of renal trouble was at once aroused. The patient was Lillie B., aged twenty-one, primipara. A searching verbal examination elicited the fact that sixteen days before, for the first and only time within her recollection, the patient had had slightly swollen feet, this condition being noticeable for scarcely twenty-four hours. The patient's urine had been examined at that time and subsequently, but with negative results so far as albumen was concerned. Physical examination showed a heart which was apparently normal, apex in fifth interspace, no murmur; no appreciable accentuation of the second sound. The radial pulse was suspiciously small in volume. Digital tension by tonometer, 185 mm. Another examination of the urine was made at once, and it was found to be loaded with albumen. Yet aside from the transient swelling of the feet, which had occurred more than two weeks previously, there were no subjective or objective symptoms of impending danger, and the patient's physician believed her to be in perfect physical condition. Thanks to the the efficiency of the tonometer, the real state of affairs was detected in time. The patient was immediately put to bed; suitable dietary regulations were enforced and vascular sedatives were administered. A gradual abatement of the albuminuria followed, and three weeks later the patient was delivered without mishap.

With the exception of the last, the cases cited were typical cases of the last trimester of normal pregnancy, and the inference is that during this period, at least, a high level of arterial tension does not prevail. Where in any individual case an abnormally high pressure is found, causes independent of pregnancy or only indirectly due to it, are to be eliminated before we can assert that pregnancy is the cause of the increase of pressure.

Objection may be made to the records quoted in the preceding paragraphs, on the ground that in order to be strictly conclusive the evidence should include figures representing blood-pressure in the same individuals prior to the beginning of gestation. This objection is valid; and the only excuse for failing to present the required figures is that a lying-in-hospital could not, in the nature of the case, furnish facilities for their obtainment. But inasmuch as the blood-pressures ascertained to exist in these cases of normal pregnancy are practically identical with those which obtain in non-pregnant women of the same class, the earlier records of the subjects of our experiments could modify our conclusions only if the entire group or a large number of its members, when in the non-pregnant state, presented striking peculiarities in the matter of arterial tension.

Puerperal Blood Pressure.—Lebedoff has pointed out that blood-pressure is lower during the puerperium than during childbirth. In an exhaustive series of experiments this author found an average difference of 18 mm. between pressure taken between labor pains and that of the subsequent puerperal period. The lowest records were those of the third day of the puerperium, the next lowest, in order, those of the first and second days.

Curiously enough, Lebedoff contends that labor itself has no influence on blood-pressure, as shown by the measurements taken immediately after delivery and immediately before, *i.e.*, during labor.

The tonometer was used by the present writer in four cases in from thirty to forty minutes after the termination of the second stage of labor, and again, in each case, after twenty-four and forty-eight hours. These cases show an average diminution of pressure which reaches its maximum at the time of the last measurement, but which then averages only 4 mm., and in no case is greater than 7 mm. Tests were omitted during labor itself, and the experiments were not carried beyond the third day.

The Influence of Psychical States.—The influence of sensation, of intellectual effort, of emo-

tion and of the exercise of the will upon blood-pressure, has been widely if not exhaustively studied. These influences should be borne in mind by the clinical observer in using the tonometer or other blood-pressure apparatus.

Complete separation of the psychical states of feeling, knowing, reasoning and willing can be made only logically or in a subjective sense. In no two persons, nor in any single person at different times, can conditions be produced in which one of the so-called faculties of the mind will be represented to the exclusion of the others, or in which all of them will exist in exactly the same proportions.

Added to this obstacle to experimental work is the confusion which arises from the varying methods of different observers, and from inevitable differences of description and of interpretation of complex mental phenomena. Hence we have Huerthle declaring that slight intellectual effort is attended by a rise of pressure, and Grebner maintaining that aural and visual sensory impressions produce a rapid but transient change of the same nature; while Kiesow contends that changes in blood-pressure are not caused by mere sensation as much as by pure intellectual activity. Similarly, it is maintained on the one hand that the rise of blood-pressure which occurs during voluntary muscular contraction is a reflex due to irritation of nerves of sensation by the contracting muscle, while on the other hand it is pointed out that the will alone, or the psychical perturbation accompanying a voluntary act, independently of the irritation of sensory nerves, is capable of bringing about the general arterial contraction which promptly follows normal muscular exercise.

This latter point was illustrated by an experiment by Kornfeld, who found that the result of walking a short distance in the customary manner was a slight rise of arterial tension; whereas if, in traversing the same distance, an effort was made to walk in a straight line, the rise of pressure was materially greater. On the other hand, in an individual who is in a condition of great anxiety and excitement, muscular effort will produce a lowering of vascular tension by distracting the mind and thus relieving mental strain.

The therapeutic applications of this principle are many, and are based upon the fact that the cardiovascular nerve centers are constantly responding to a variety of stimuli from without and from within. Thus the use of a hypnotic, such as trional or chloral, entirely aside from its direct effects on the vaso-motor and cardiac centers and on the vessels and the heart themselves, may powerfully diminish blood-pressure by working on consciousness. Again it is not unreasonable to suppose that in the often unexplained relief so frequently afforded to sufferers from various maladies by a "change of scene," an alteration in blood-pressure dependent on new psychical states is an important secondary factor. That such change of arterial tension might correct nutritional and functional disorders may be readily conceived.

In tracing normal blood-pressures during a period of twenty-four hours, one is impressed by the tremendous changes which are associated with modifications of the conscious state (sleep is of course to be considered only as a modification of the conscious state, that is, as something different in degree and not in kind from consciousness in the popular acceptation of that term). In the curve borrowed from Weiss's reports it will be noticed that a considerable rise of pressure is attributed to "psychical excitement." In the curve based on the writer's own observations a much greater rise is shown as a result of a lively argument. Unquestionably a large part of the almost constant rise of pressure from the hour of rising in the morning until the hour of retiring at night, is due to a succession of similar influences.

Finally, in looking at Chart "A," the overwhelming effect is noticed of a peaceful sleep in the recumbent posture, lasting for nine hours; here a pressure of 170 mm., which, if continued for a long time would produce mischief, is brought down to the modest level of 108 mm.

The Periodic Afternoon Rise of Pressure.—As already intimated, the so-called periodic rise of pressure, which commonly occurs in the afternoon, is to be explained at least in part in terms of psychical activity. Experimentally such factors as muscular activity, posture, meals, etc., can be practically eliminated in comparing morning with afternoon pressure, while the influence of changes in the conscious state cannot.

It is difficult to see how anything is to be gained by attempts to fix the amount of the "normal" periodic rise of pressure, inasmuch as individual variations will obstinately refuse to come within the limits of any law, unless the latter be made so elastic as to forfeit all significance. Nevertheless a number of investigators have devoted themselves to this problem, displaying in its pursuit more industry and zeal than wisdom.

Jellinek undertakes to say, as a result of his experiments, that blood-pressure is highest at one o'clock in the afternoon "in nearly every case." Zadek modestly declares that "independently of the midday meal" there is an afternoon rise of pressure amounting to from 8 to 15 mm. of mercury, and that this early afternoon rise is followed by a fall "toward evening." Kiesow arrives at the doubtful conclusion that "one patient shows a distinct elevation of pressure during the early hours of the day; with some others the pulse is stronger in the afternoon, while others show a rise of pressure in the evening."

After all, it would seem far more profitable to arrive at an intelligent understanding of the causes which are responsible for any "periodic rise" than merely to establish the fact that the thing exists. Such an understanding, once gained, will enable us to account for cases in which the periodic rise occurs as well as those in which it does not. One route leading toward a rational explanation of the matter, *i.e.*, a study of the influence of psychical states, has just been pointed out. Others will suggest themselves on

a perusal of the sections which follow, dealing with muscular activity and qualitative changes in the blood.

Mental Exhaustion.—Thus far active mental states have been spoken of chiefly with regard to their ability to effect an exaltation of arterial tension. But while psychical functionation is capable of influencing arterial tension in the manner described, an undue prolongation of mental strain may have the contrary effect.

Broadbent has pointed out that sustained exertion, whether mental or physical, is one of the causes of a low-tension pulse; and he includes "depressing emotions" in his classification of the causes of low-tension. If by depressing emotions he means merely those which depress the pulse, well and good; but if those emotions which popularly are called depressing are intended, the classification is open to question.

It would perhaps be going too far to apply to a discussion of physiological factors the observations of Craig, whose work concerns itself wholly with the insane. Nevertheless, if, as Craig asserts, blood-pressure is invariably raised in insanity during periods of depression and is restored to normal when depression has passed away, one may at least emphasize the need of a further study of the relations existing in healthy individuals between depressing emotions and intravascular tension. We must not be misled by the use of apparently simple terms, into the hasty assumption that degrees of what we call depression in the psychical scale, induce proportionate degrees of depression or lowered tone in the bodily functions.

(To be Continued.)

SOME RECENT ADVANCES IN MEDICAL THERAPEUTICS.*

BY THOMAS E. SATTERTHWAITE, M.D.,

OF NEW YORK;

PROFESSOR OF MEDICINE, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

THE science of therapeutics includes the application of any method or agency for the amelioration, cure or even prevention of disease.

Viewed from this broad standpoint, it will be generally conceded that the most brilliant therapeutic achievement of recent years has been the practical suppression of yellow fever in Havana by our Yellow Fever Commission.

Let us review the facts as they have been presented to us. Prior to 1901, for nearly 140 years there have been some yellow fever fatalities in Havana every month of all those years. It was in 1900 that our Government first undertook to determine whether the disease was susceptible of control. In the early summer of that year the Army Yellow Fever Commission consisting of Drs. Reed, Carroll, Lazear and Agramonte began their researches. In a few months they were able to announce that infection by the bacillus of Sanarelli was disproved to their satisfaction, and though neither they nor anyone else has discovered the precise germ as yet, they did succeed in proving that a species of mosquito, the *Stegomyia fasciata* was the intermediate host.

The mosquito theory it is now known originated with an Englishman, Dr. Charles F. Finlay, a resident of Havana, in 1881, while Manson was conducting his studies which led to his discovery that the *Filaria hominis* of elephantiasis arabum is also conveyed by a mosquito, though it antedated the discovery by his countryman Ross that the Anopheles mosquito conveys the malarial poison.

From this point on, the credit appears to be fairly due to Americans. It was of course, necessary to discover first what relation, if any, fomites bear to the production of the disease. Fortunately the commission was able to secure a number of non-immunes, willing to submit to the danger of contact with infected clothes, bedding and the discharges, under conditions of heat and moisture most favorable for generating the disease, mosquitoes being rigidly excluded. But protracted exposures of these subjects yielded no results; they were unaffected.

Having concluded these negative experiments to their satisfaction, the commission subjected a number of non-immunes to contact with contaminated mosquitoes, while every other probable causative agency was excluded. Thirteen of these individuals now contracted yellow fever, the period of incubation being in these experimental cases from about two to 5½ days. Further research disclosed the fact that the mosquitoes required from 12 to 14 days for contamination.

Finally the authenticity of each case was certified to by Drs. Finlay, Gorgas, Guiteras and Albertini, men of the highest repute as yellow fever experts.

As corroborative evidence that the mosquito is the carrier of the poison, similar experiments were made in other Cuban localities, and the diagnoses were confirmed by yellow fever experts. In all twenty-one cases of the disease were caused by contaminated mosquitoes. Three proved fatal, and at the autospies the characteristic lesions of yellow fever were found.

The theory was then accepted by the physicians of Havana, and it appears to fit all cases, though the complete problem has only just been worked out. For example we did not know until recently how a vessel, that had been infected in Southern waters, and fumigated by sulphur, could after a prolonged stay in a vigorous northern climate, exhibit a recrudescence of the disease, as soon as the vessel returned to the tropics, although there had been no possibility of a new contamination.

The explanation appears to be this: The fumigation by sulphur did not happen to kill the mosquitoes; or their eggs survived. According to Theobald mosquitoes hibernate in cold weather, even in the arctic regions. The gravid female lies dormant all winter, and deposits her eggs in the spring, while it is not unlikely that infected eggs may also hibernate.

Briefly, after eight months of anti-mosquito work, the disease disappeared entirely from Havana, while in 1900 there had been 300 deaths

* Presidential Address before the American Therapeutic Society, March 11, 1903.

from it. And yet during the summer of 1901 there had been as many as 40,000 non-immunes in the city. Is not this a brilliant record for medical therapeutics? Here was a city of 275,000 inhabitants where ten years prior to the American occupation the death rate had been 45 and yet it was reduced in 1901 the last full year of American occupation to 22.11.

If, therefore, similar methods can be pursued in Rio, Vera Cruz and the remaining foci of the disease, may we not confidently expect that yellow fever will eventually be wiped out in them also? But do not let us forget to give credit where it is due, to our army medical men first and then to the medical Governor-general, who gave them all the encouragement in his power.

It is sad, however, to think that this great discovery was at the expense of the life of one of the commission, Dr. Lazear, who fell a victim to the disease at his post of duty, and of Dr. Reed, its head, whose health was so undermined by his labors that he eventually succumbed; both examples of the heroic sacrifices medical men freely make in the cause of suffering humanity.

We are still in the throes of a grave cholera epidemic in the Philippines. It came from China. Up to Jan. 3 of this year, there had been thousands of cases, the exact number we shall never know, because the disease was so widely spread over the islands that the official reports have necessarily been incomplete. It has been estimated that there have been from 120,000 to double that number of cases and that the mortality has been anywhere from 70,000 to 140,000. On the whole, so far as we have been informed the mortality was about 60 per cent. in the outlying districts and 75 per cent. in the city of Manila. Of the attacked about 80 per cent. were Filipinos and only about 3 per cent. Americans, the mortality among the latter being from 40 to 50 per cent. Great credit appears to have been due to our army of occupation for their strict preventive measures. So effective have they been that when individual cases occurred among our men, they could usually be traced to neglect of sanitary orders. In fact under our military system the disease proved to be quite tractable, while among the natives outside of our jurisdiction it has spread like wild-fire.

A small garrison town occupied by our troops might be absolutely free from the disease, while 10 or more per cent. of the native population about it would be carried off.

According to one of the latest official reports, cholera is propagated through the instrumentality of infected persons, contaminated food or drink, and at times by direct contact with the dead, as in making post-mortem examinations.

Quarantine appears to be effectual or at least very potent in checking the spread of cholera. Suspected persons from infected localities should be held for at least five days, and all merchandise or wearing apparel liable to have been contaminated, or in a moist condition, should be fumigated. If the disease were detected at its outset, the sick isolated, their discharges disinfected, the sale of uncooked fruit and vegetables prohibited, cooked food protected against contamination, and the natives compelled to practise sanitary methods. it is believed that the disease would soon be exterminated.

So far as actual treatment is concerned, hospitals appear to offer the best hopes of life, for in them, while the mortality has been 40 per cent., outside of hospitals it has been 80 per cent.

As to the success of treatment by drugs, our information is less satisfactory. However Dr. Freer (*Medical Record*, Jan., 1903, p. 18), Superintendent of the U. S. Government Laboratories in Manila reports some success with benzoyl-acetyl-peroxide. The peroxide was given in solution and in capsules as an intestinal antiseptic, with stimulants to sustain the patients strength. To obviate the protracted vomiting, sometimes caused by the peroxide, when taken in the mouth, he used high rectal injections of a 1-1000 solution; given every four hours, during the acute stage of the disease. This latter treatment seemed to give relief. It also had a stimulating effect. These experiments were carried on in the tent hospital of San Lazaro.

Dr. Thomas R. Marshall in charge of another tent hospital found that this method was the most efficacious way of administering the peroxide.

The peroxide has certainly had a very extensive trial and it appears to have given a good deal of satisfaction. The guiacol carbonate and calomel treatment has also been employed with some success. The virtues of the two methods are for the most part ascribed to their action as intestinal antiseptics. Apparently they reduce the fatality one-half. However, as the virulence of epidemics vary greatly, it is desirable that these two remedies have a more extended trial. Dr. E. B. Fullerton of Ohio has also called our attention again to the use of the sulphate of quinine by the mouth at 15 to 20 grain doses which he claims control the purging and vomiting in one or two hours.

The plague is now a matter of practical interest to all Americans. It has attacked our new possessions, and reached the shores of this country, so that grave epidemics within our borders are always possible.

As in yellow fever and cholera, we have prosecuted the study of it with unremitting diligence, and equally with them, have had more success in prophylaxis than in treatment. The impression still prevails that rats are the chief media of infection, though fleas may carry the disease from one rat to another. Ants may also be the intermediate host, but not mosquitoes. The disease can enter the system by the air passages or by the digestive tract, but these avenues are rarely employed. It is chiefly through abrasions on the extremities, that become infected. The bare legs and feet of the Filipino natives afford a convenient mode of ingress, while if the wellshod and clothed contract it, it is through abrasions on the hands, arms or face. From these parts the plague poison spreads to the nearest lymphatic glands, the inguinal or the axillary, as the case may be.

One of the greatest difficulties in meeting the rat danger is that in some localities, as in India,

for example, the native population is opposed to the killing of animals, so that rewards have to be offered for the live rats. Forunately, in this country and its dependencies, we do not encounter the same difficulty, because our military rule is more efficient and we do not feel obliged to yield to native prejudices or traditions. This is one reason why we have succeeded in mastering the disease in San Francisco, with such a small loss of life. All nationalities are liable to contract the disease, but it is most fatal in the Chinese and it is they who bring it into this country. The recent epidemic at Mazatlan in Mexico was caused by Chinamen who, after reshipping at San Francisco from the Trans-Pacific steamer to the Coast-wise Pacific Mail, landed at Mazatlan with the intention of entering the United States from the south. This indicates to us the methods to be pursued in the prophylaxis of the disease. As yet we do not know much about the vitality of plague. Abel is said to have found that is may survive as long as forty-eight days in the pulverized organs of animals dead of the plague. How much longer it may live under favorable conditions is unknown as yet; but the vitality of the dried poison shows how easily it may be conveyed in merchandise from one port to another. When we compare the way in which plague was checked in the Philippines with the dilatory work in San Francisco, we read an important lesson. From June of 1900 until late in December of 1902, the plague prevailed continuously in San Francisco, the authorities using no adequate means to control it. But when the United States Government took the matter in hand the epidemic was promptly checked. Arrests were made where there was overcrowding in houses, scavengers were employed to remove garbage and sweep streets and disinfect them three times a week. Closets, back areas and unclean alley-ways were limed and then sprayed with carbolic acid; the sick were inspected daily, the dead examined carefully; autopsies insisted on in doubtful cases, and rats exterminated by traps and poison. It is a matter of easy demonstration that when such methods are employed the disease yields in a very brief time.

Some interesting points have been observed by the health board in Sydney. In the epidemic of 1900 it was estimated that 290 whites and 10 Chinese were attacked, but while the mortality among the latter was 80 per cent, the total was only 34 per cent. In the epidemic of 1902 only 141 persons were attacked, the proportion of deaths among the Chinese and the general mortality being about the same.

The patients were treated in the hospital with the Yersin-Roux antiplague serum and exposed persons were inoculated with the Haffkine prophylactic serum, if they so desired it; but the conclusion of the health authorities was that the value of this latter serum is doubtful. Haffkine's serum is a sterilized culture used as a vaccine. Two cubic centimeters are usually injected with a hypodermic syringe, the first one over the insertion of the left deltoid and the second, a week later, over the triceps. This prophylactic has been used extensively in India, but, while it is said to have reduced the mortality and number of attacks from 85 per cent. to 77 per cent., it is much in need of accurate standardization, as the dosage required is uncertain, for an ordinary injection in a mild case may cause death. There appears to be only one serum that can be called curative, the Yersin-Roux, and yet it is not a specific, for it acts more like a cardiac stimulant. It is prepared like the antitoxin of diphtheria. The French Commission have reported that the mortality under its use was 14 per cent. against 70 per cent. without it, and yet the Indian Commission has rejected it. In one instance it appears to have caused a number of deaths. Was it contaminated; or was the dosage too large?

The treatment is systemic; ice is used to relieve the buboes and atropine in four-drop doses of a one per cent. solution is recommended until the pupils are dilated; calomel is also used as an internal antiseptic. Among the Chinese and Filipinos, since 1899, in 788 cases a mortality of 630 or 79.4 per cent. has been reported, but the rate appears to have been largely influenced by racial peculiarities, lack of cleanliness and other unhygienic conditions. In the recent Hongkong epidemic the mortality reported among the Chinese was 93 per cent., of native Indians 77 per cent. Japanese 67 per cent., Europeans 18 per cent., showing as usual the comparative immunity of the latter.

In the construction and maintenance of the Interoceanic Canal, we shall be confronted with serious problems bearing on the prevention and treatment of the pernicious malarial fevers endemic on the Isthmus.

Not only are these fevers very fatal, they also engender general debility in the residents of the infected zone, reducing the economic value of their services and often leaving a permanent impression on the system. Calling to mind the success we have achieved in Cuba, at a recent meeting of the American Association for the Advancement of Science, Dr. Welch of Baltimore urged that the attention of the President of the United States be called to the importance of appointing a medical man, with the proper qualifications, on the Canal Commission. This society might advantageously endorse Dr. Welch's recommendation. We cannot be too prompt in acting upon this matter, because a control of these fevers, which from time immemorial have menaced life and health, will enormously increase the value of the Interoceanic Canal. And recent events justify us in believing that should we use every effort to control malarial fevers, we may meet with as much success as we have had in yellow fever.

Our experience also teaches us that a qualified medical man in the Government service should be appointed to direct and supervise the medical part of this work.

In fact the most burning questions now before American physicians are those concerning tropical and semi-tropical diseases. It is not only that they must be considered in the management of our newly acquired territories or those still under our

supervision, but because the present rapidity and ease of transportation and the increasing number of immigrants coming to us is constantly adding to the danger that these diseases will gain a permanent foothold here. The study of tropical diseases, therefore, in this country is not only obligatory on us as American physicians desirous of being conversant with the diseases of our country, but it has a commercial side that will compel our Government to found Schools for Tropical Medicine, unless our Universities or other teaching bodies rise to the emergency. The discovery of the so-called *Uncinariasis* produced by the *Anchylostoma duodenalis* in our Southern States, by Dr. Stiles, of the Bureau of Animal Industry, is an example of what we may expect from intelligent investigation under government supervision.

A disease somewhat resembling glanders, now being studied in Manila, is one instance of several new diseases that have yet to be classified, and for which some efficient form of treatment must be devised. Assist. Surgeon R. P. Strong, U. S. A., Director of the Biological Laboratory in Manila, says that the disease begins as a small nodule in the skin, often near some abrasion. As the infection proceeds it bears "buds" in its course, probably like the "farcybuds" of horses. If the disease is neglected it may spread all over the body, even to the nasal passages, producing a mucous discharge like glanders. The buds, however, do not appear to be due to glanders, but to a vegetable parasite of the yeast series. The treatment consists in opening the bud, curretting and cauterizing it, and bathing it with an antiseptic solution. The disease may persist for months, but most of the cases eventually recover.

This new affection is surgical rather than medical, but it serves to illustrate my point, which is that we shall have to enlarge our classification of diseases, and that the advances in our knowledge of them is now coming through our government medical men.

Tuberculosis is known to be the most prevalent disease we have and the most dangerous to life. Whatever the ratio it bears to death from other sources in this country, and statistics differ on this point, one-third of the deaths in Germany are said to be due to tuberculosis, and the ratio is thought to be even more unfavorable in France, Russia and Austria.

But it is sufficiently dangerous to enlist our most intelligent efforts to repress it. And yet we need a campaign of education among the laity as well as among the sufferers, if we are to make satisfactory progress. And first of all we must understand that tuberculosis is not communicable like scarlet fever, or syphilis. Its methods of propagation are unique. Persons in ordinarily good health do not "take" it from others, or if they do, throw it off again. Otherwise we should all have it. For even the inoculation of an open wound, or inspiration of the tuberculous sputum, or the excretions of the contaminated air passages will not produce a constitutional form of the disease, unless the exposed individual has a diminished power of resistance.

But in our crowded cities, and among the overworked and underfed anywhere, there are many in a lowered condition of vitality, so that with them it may be communicable, and accordingly citizens generally should be shielded from the danger of contagion. So that sanitary regulations, such as the protection of all individuals from the danger of contamination by the excretions of the upper air passages should be observed by all good citizens. But sanitation may be carried to a vicious extreme. Some years ago the public was led to believe that the New York Board of Health was preparing to quarantine the unfortunate consumptive, following a disastrous method once tried in Italy. It was, however, met by such a storm of indignation both from medical men and the laity, that it was never put in practice. For quarantining of these unfortunates would be cruel and harmful in so far as that it might deprive their families of support, while they would be branded like lepers. Experience has also shown that this plan would be impracticable. On the other hand, even in crowded cities the consumptive can be educated and trained so as not to be a dangerous element in society.

Serumtherapy, it is generally admitted, I think, is not curative when there are fibroid, caseous or ulcerative processes existing. It has less of a hold here than abroad. An interesting investigation on this point has been made by Pottenger, of California. Inquiring as to the use of serum among well-known medical men at home and abroad, he has found that about one-third did not recommend it; some strongly favored it; a small number were positively hostile to it. Taking as a basis for computation 1,200 first-stage cases, he found that of 611 treated in sanitoria by the usual dietetic and hygienic methods as compared with 589 treated in the same way, plus the administration of tuberculin the latter showed 20 per cent. more of cures.

It is now generally admitted, however, that pulmonary consumption is curable. Even Robin, the most determined opponent of what may be called curative methods, admits the possibility of a cure in 14 per cent. It is, of course, a matter of common knowledge that consumption in its early stage is frequently curable; but, as a matter of fact, there is no stage in which cures may not take place. Our pathological anatomy has taught us this, for the healed cavities in tuberculous subjects are familiar to all who have made many post-mortem examinations, for a study of tuberculous lungs at the dead house, shows that even when the disease is extending at one point, it is often healing at another.

But if treatment of pulmonary tuberculosis is to be successful it should be appropriate to the stage, and to individual conditions. First-stage cases, as a rule, do better in high and dry localities; in the last stages, patients often do best at sea-levels. These are facts of common knowledge. Some, however, are best treated in sanatoria, others do as well at home. Patients with limited means and deficient self-control improve more rapidly in sanitoria, than at home. The patient learns, during a course of sanitorium treatment

how to care for himself, and how to act so as not to endanger his kind.

But there is also an economic side to the question that needs to be considered. The French are always practical, and it may be well to look at this subject a moment from their point of view. If we are correctly informed, Brouardel, Grancher and Landouzy argue as follows: Assume, if you will, that there are 500,000 consumptives to be treated and out of that number 100,000 are bed cases. Now, if each bed costs $1,000, it would require $1,000,000 as the initial endowment, without considering the cost of maintenance or any incidentals. Obviously, such an outlay and such annual charges would be burdens that should be seriously considered in undertaking to solve this problem, for we must be practical, or make ourselves ridiculous.

Fortunately some light has been thrown on this economic view of the question by recent experiences in the suburbs of New York city. Some eight years ago, before the present agitation, about 56 acres were purchased at Bedford, by the Montefiore Home, and $250,000 was expended in suitable buildings, connected by glass corridors and provided with an abundance of light and air. Under a plentiful milk and egg diet, with sanitary regulations and appropriate out-of-door exercise, an apparent cure was shown in 17.3 per cent. and an amelioration of symptoms in 65 per cent. The cost of support for each inmate was only 76.8 cents per day. Here then we have an approximate idea of the cost of maintenance, in substantial buildings, with hygienic surroundings.

A still more economical plan was tried last year by Dr. A. E. MacDonald of the Manhattan State Hospital, Ward's Island, with his tuberculous insane. In the summer of 1901 he put his experiment in operation by erecting a small tent-hospital on elevated and dry ground, in a shady spot, near the river. For his patients he put up two tents, each 14 feet high and having a capacity for 40 beds, 40 sq. ft. being allowed to each bed. The floors were made of boards framed in sections, so that they could be taken up and exposed to the light and air. Another tent served as an eating hall, and others still for the attendants and the various necessities of a field hospital. In the year prior to the experiment of the tent-system the percentage of deaths was 9.4 per cent. while under the tent system it fell to 8.4 per cent.

This method certainly seems to offer great promise both from a therapeutic and economic point of view.

But there is another matter that demands consideration. Admitting the curative value of rest and that freedom from care and worry, and hypernutrition are desirable in febrile cases, the afebrile ones should equally well be provided with some useful employment. When the disease is not progressive, many a patient even with a good-sized cavity, is capable of a fair, if not a good day's work. I have under my observation and have had for many years patients with large cavities, who have led on the whole useful and active lives. One of my patients who has been under my observation for over 20 years and has a good-sized cavity in one lung, has managed to do regular and active manual work during most of that time, and in fact is now an active woman, who considers herself far from being an invalid.

On the whole, sanatoria have certain advantages in the treatment of severe cases over the home plan, chiefly because in them it is easier to carry out the necessary systemic treatment, and is less expensive, so that we are not surprised that in a recent report from a sanatorium at Fort Stanton the cures are put at 24 per cent.

There seems to be little room for doubt that we have already begun to diminish the death-rate from consumption to an appreciable extent. According to German official reports, there has been a change from a previous rate of 31 per 10,000 to 21 per 10,000; and the improved statistics are held to be due to sanatoria, protection against infection, and improvements in the condition of workingmen under the new State Insurance laws.

There is no doubt also that the present agitation going on in this country, having for its object the better housing of the poor, is one of the first steps toward the repression of tuberculosis. And we cannot too strongly insist on the enforcement of laws that require that all dwelling rooms are supplied with a proper amount of air and light.

While the recent reported statistics in typhoid fever indicate that from a mortality of about 20 per cent., based on the statistics of the European hospitals in the time of Murchison modern treatment has reduced it to an average of about 10 per cent., a novel treatment based on the idea that the disease is due to a toxin, the produce of the Eberth bacillus, acting on the adenoid tissue of the intestines, is credited with a reduction in the rate below this point. Abt, of Chicago, in a series of 40 cases in children treated with a view to disinfecting the system with the benzoyl-acetyl-peroxide, records a mortality of only five per cent. The drug is claimed to be both an intestinal disinfectant, an antipyretic and a diuretic, and to be innocuous. In 128 cases treated by Harris with large quantities of this drug, combined with a laxative, in the early stages, the temperature it is claimed returned to normal in from 10 to 12 days. Though from the statements already made, it may not be well borne by the stomach, this objection may possibly be overcome by administering it in capsules. On the theory that the primary colony lodges in the respiratory tract, it has been used in the form of a spray.

In the matter of internal antiseptics, there is still a difference of opinion. Individually, I have always maintained that it exists and have held the view that calomel, quinine, and muriatic acid are good internal antiseptics; also that creosote, bismuth, ox-gall, and iodine have similar properties. Internal antiseptics, I believe, are no longer to be used theoretically; but at the same time it is well to be on one's guard against the increased array of so-called internal antiseptics which are now being exploited. Many of them, I fear, have no real merit.

In some quarters there is a persistent opposi-

tion, however, to products of the coal-tar series, on the ground that their apyretic action limits oxidation, which is necessary for the destruction of the toxins. The recent plan of Hirschfeld, of the Brisbane Hospital in Australia, is in the direction of increased oxidation. He accomplishes it by the use of hot baths instead of cold and reports a mortality of 3.4 per cent. when baths of 80° F. were used, as against 7.2 per cent. when in 1887 he used cold baths. After an experience with thousands of these warm baths he has observed the temperature to fall from 1° to 2° F. In the aged, children or weaklings, he used a bath at 90° F. His claim is that the patient's capillaries are more distended in the warm bath, so that he parts with his heat more readily; while under the cold bath, the capillaries are contracted, the surface cooled, while internally there is an increased production of heat.

This method certainly deserves a fair trial.

Probably no remedy introduced within the last ten years has established itself so firmly in the public confidence as the antitoxin of diphtheria, and yet I remember when a little more than ten years ago, at a meeting of our State Medical Society, I spoke of it as an experiment. During the past year, Kerley has given us some statistics illustrating the comparative value of the remedy from our present point of view. In 103 cases treated by him previous to the introduction of antitoxin 60 or 58 per cent. died, while of 56 cases treated by him with antitoxin there were only four deaths or a mortality of only 7 per cent. These may possibly be regarded as extreme figures, both as to the results of treatment with and without anti-toxin. But independent of the figures just given we have a large mass of confirmatory evidence such as a rate of 29.29 from the Hospital of the Metropolitan District Board of London in 1894, and 38 per cent. from 157 organized bureaus of health prior to the serum treatment, as against 14.6 per cent. in 1900, while in the 157 reports from the same boards, the mortality under the serum treatment had fallen to 9.8 per cent.

Certainly from the statistics at hand we are justified in saying that the mortality since 1893 has fallen 50 per cent., probably much more than this. It would appear, therefore, that the discovery of antitoxin may be regarded as next to vaccination in its immediately beneficial effects. And it seems likely that the results during the next ten years will be even better. The early accidents such as fever, arthritis, hematuria, albuminuria, reported when the serum was first introduced are now exceedingly rare, especially if the sera of our best American makers are used. The initial dose for an infant under one year is now established at 2,000 units, for one over one year 3,000 units and for an adult 4,000 to 6,000 units, these amounts to be repeated if necessary at 12-hour intervals or even less, until the membrane disappears. In some cases apparently hopeless, especially in laryngeal implication, in adults as much as 80,000 units and even more may be given in divided doses in a single case. This method as now practiced, appears to be attended with no ill-effects. In one case 8,000 units were given by McCullom as an initial dose for an adult in an apparently hopeless case, 4,000 some hours later and repeated every four to six hours until 92,000 units were given. Recovery was complete.

Taking up now the subject of chronic diseases, some little advance has been made during the year in the treatment of heart diseases. At least it may be said that there is a growing tendency to adopt the more modern methods of treatment, especially in chronic heart disease, and use indirect rather than direct methods, so that hydrotherapy, resistance and other exercises, diet, general tonics and purgatives are assuming their proper prominence, while the nitrites are substituted in great measure for digitalis, strophanthus and heart stimulants of this class. Physicians are also beginning to appreciate the fact that in no other disease do the indications differ so widely. The more we know of the frequently dangerous effects of certain powerful drugs, the less we will use them. If we think more of the condition of heart muscle, in the light of all the other systemic conditions presenting themselves, and less of the valve lesions, we will get nearer to the proper conception of the proper treatment to pursue.

In the management of chronic heart diseases we should appreciate the character of the blood-vessels, the condition of the kidneys, the chylopoetic tract, lungs and skin, before we resort to powerful drugs. Although digitalis and its congeners are valuable and are capable of accomplishing much, they are sometimes attended with such danger that at first certainly they should be given in small doses.

When the arteries and the heart are free, the nutrition of the heart may, it is true, be favorably influenced, but when their lumens are contracted and infiltrated, digitalis will still further contract them.

The attention of both surgeons and physicians continues to be called to the topic of decortication of the kidneys in chronic Bright's disease. Since Edebohls published his few early cases, other surgeons have followed him and some experimental work has been done in laboratories.

The impression seems to prevail, however, thus far, from experimental work that after decortication in animals there is rapid regeneration of the capsule, which becomes quite as dense and resistant as the normal capsule, and no more vascular.

This whole topic is now in the experimental stage so that we are not justified as yet in advising the operation until it offers better prospects for the patient than are now presented.

Surgeons are also now doing radical operations for the cure of ascites, and the question is before us whether they are useful and if so, under what circumstances. In the patients that have thus far been operated on, it has not always been clear whether the ascites was due to cirrhosis or some other cause. Renal and cardiac dropsies are known to yield in many cases to appropriate medical remedies, while simple paracentesis effects

cures. According to the report of Sears and Lord in 78 cases they have collected, operative measures do not appear to be justifiable in the presence of jaundice or intestinal hemorrhage. On the other hand if the kidneys and heart are sound, general nutrition good, and medical remedies have failed, an operation may be considered. That hepatic cirrhosis may in some cases be cured by an operation is admitted, but usually in such instances other organs are so affected that the hope of recovery is small. In any event the mortality following the operation has been large.

The operation appears to have been done under a variety of conditions. This, however, like the decortication of the kidney in Bright's disease, is in the experimental stage, and we shall look to the surgeons for more precise indications for it. At present there is no ground for believing that it is calculated to supercede medical remedies or simple paracentesis.

Some advances are to be registered in the problem of the treatment of appendicitis, in so far as there is beginning to be a reaction from the *furor surgicus* that at one time infected the country, it being admitted by a number of surgeons that as a rule simple acute appendicitis is best treated by internal medication, the chronic and relapsing forms being more properly the field for surgical intervention.

At a recent meeting of the Societe de Chirurgie Lucas Championniere reported that of 44 cases operated on by him during the suppurative stage 12 or 27 per cent. died. This probably is a good showing for operation in this stage—while on the other hand, the operations à froid, as the French say, have a trivial mortality. I am inclined to believe with Broca, that "l'operation immediate est plus grave que l'expectation armée," and also with him that with suitable and early treatment, complete resolution is frequent, and amelioration is the rule. Treves, now held by many to be the foremost surgeon in England, also believes in a medical treatment. He says the number of cases which undergo spontaneous cure form an overwhelming majority, and cannot be lost sight of, nor can the opening of the abdomen through the muscular parietes over the cecum be regarded as a trifling procedure. Further, that in a fair proportion of instances in which there has been a relapse no surgical interference is called for. These are opinions from distinguished surgeons, and yet I fear there are medical men who do not believe in the medical treatment of appendicitis.

But there is a word more to be said of the surgical treatment of appendicitis. How many unfortunates that recover from the immediate effects of the operation, are permanently invalided from fistulous openings, hernia, etc., due often to operations inopportunely planned or poorly executed, and how many secondary operations are done in these cases by the best of our surgeons.

At the present time we are putting less faith in the efficacy of mere drugs, largely because there is a wide difference between the drugs of commerce. In this connection it may be important to call attention to the fact that pharmacists, even in our largest cities, are not sufficiently controlled by the sanitary authorities. For example, in 373 drug-stores recently visited by the inspectors of the New York Board of Health only 58 sold phenacetine that corresponded to its recognized analysis. We are therefore reaching a period in the medical history of this country, when there should be some stricter supervision of drugs and medicines, and they should be passed upon before exposure for sale by competent experts. This is especially important for the products of biological activity, as was demonstrated in the city of St. Louis last year, where a number of cases of tetanus are said to have developed from the use of antitoxin for diphtheria. Tetanus also appears to have similarly followed the practice of vaccination for protection against smallpox. There is no doubt that the best manufacturers of pharmaceutical products, sera, glandular extracts and vaccines, employ many of the best-equipped men in the land, and that their methods are exceptionally good, and their appliances of the most approved kind. Still, less reliable men may put their goods on the market to the danger of the community at large. It is apparent, therefore, that all such products should be under a central government control, and we cannot too highly approve the efforts made by this Society in this direction from the date of its foundation. The bill that was recently introduced into the Senate "to regulate the sale of viruses, serums, antitoxins and analogous products, in the District of Columbia, and to regulate interstate traffic in such articles," etc., was a move in the right direction. The objects of this bill and our efforts were commendable and it is to be hoped it will not be long before these objects are attained. The scientific physician of to-day is demanding as his right that therapeutic products be reliable and free from contamination, and so far as practicable, of standard efficiency.

In this connection, I cannot avoid saying that we require in the State of New York at least, a State supervision of the medical education of pharmacists. We cannot be too peremptory in demanding a preliminary examination for pharmacy students and a State examination to permit of their practising.

In fact, I cannot do better than quote from one of our members, Dr. E. M. Houghton, who says: "I believe we should look upon the subject of pharmacology in the same light as we do physiology and pathology, and pursue the study of it as a pure science; determine by careful and systematic laboratory experimentation the changes in the physiological action of the various organs of the higher vertebrates produced by a drug, before an attempt is made to employ it for clinical purposes. A much clearer knowledge of the pharmacological action of a drug can be gained in the laboratory than at the bedside alone, since by appropriate methods, experiments on dogs and the lower animals generally, it is possible to determine the reaction of the animal body with a much greater degree of accuracy than is ever possible where the drug is administered to patients whose physiological functions have been obscured by the

disease processes present, although bedside study is necessary to complete our knowledge."

In the matter of heart tonics especially, as a result of physiological experiment on animals, Dr. Houghton has shown the practicability of standardizing them.

In reference to the pharmacological action of the suprarenal gland, the same author says: "Since we have no chemical means for assaying these products, it is advisable to have a pharmacological method that can be readily employed." And he has inaugurated a method of this kind, based on the submaximum blood pressure obtained by injecting intravenously different qualities of the adrenal preparations dissolved in water and comparing the increased blood pressure produced in the carotid artery of a dog or other animal, the pressure being recorded by the manometer on a revolving drum covered with smoked paper. This method has given the most satisfactory results. Similar experiments were carried out with the sodium nitrite. In this way, therefore, substances of animal, vegetable, and mineral nature, may be so tested that their precise value in medicine for clinical purposes can be ascertained with an extraordinary degree of accuracy.

It is not out of place in this connection to call attention to the practice advocated by the International Association for the Unification of Formulæ for Heroic Medicines, which met in Brussels on September 15 last, in the establishment at ten per cent. strength all the tinctures of active or potent remedies. The importance of this is seen when we realize that the U. S. Pharmacopœia tincture of aconite is seven times as strong as the British preparation, three and a half times as strong as the German, and nearly double the strength of the French. The importance of an international standard, therefore, when we consider the dangers of the indiscriminate use of such tinctures by physicians who for the most part are entirely ignorant of the varying degrees of potency of the pharmacopœial tinctures of these various countries, is evident. Therefore, so far as possible, we should now advocate an international standard and urge its importance.

At the present moment there are many obstacles in the way of a combined movement of this kind under the auspices of the U. S. Government, but the Committee on Anti-toxins of the U. S. Pharmacopœia is proposing to adopt a national standard for our anti-toxin diphtheria similar to the one used in Germany. This will be a step in the right direction.

It has been said that nothing better illustrates the tremendous progress made in modern surgery than its invasion of the field once occupied by the medical practitioner. The department of medicine certainly takes pride in the success of every other department and welcomes advances from any quarter, but if progress means the saving of life, or the prevention of disease, can any record be more brilliant than the recent successes of our medical men in dealing with the yellow fever, cholera and plague problems? For during the few years that we, as Americans, have been recognized as a world-power we have not only shown a degree of capacity for ruling alien races that has been unknown heretofore, but have devised methods for controlling some of their most terrible scourges, in a way that encourages us to believe we may extinguish them entirely.

Treatment of Cicatricial Contractures.—An operation of interest and apparently of value, has been suggested in selected cases of cicatricial contraction of the upper extremities, by A. H. TRAVER (Am. Med., April 11, 1903). He employed it in a boy who, as the result of a burn, presented an extensive cicatrix of the arm, which caused extreme flexion at the elbow and hyperextension at the wrist. The arm was practically useless. At the first operation a band of cicatricial tissue around the elbow was dissected away, permitting the arm to be fully extended. A flap of skin was then raised from the side of the chest, the ends being left intact to keep up the circulation. The skin on either side of the flap was then dissected up and by means of tension, sutures brought together as much as possible, closing in this way about one-half the gap. The arm was then drawn beneath the flap, thus covering the surface on the arm from which the cicatrix had been dissected away. A strip of gauze was drawn through beneath the arm to prevent its growing fast to the chest. The arm and chest were put up in a plaster of Paris dressing. Eighteen days later these were removed and the ends of the flap severed from the chest, brought about the arm and sutured in place, thus completely covering the denuded area. A third operation was done about two months later. A similar strip was dissected away around the wrist, the contracted tendons were lengthened, and the hand and wrist slipped underneath a flap, like that made on the chest, which had been prepared on the right thigh. A plaster dressing was applied and removed two weeks later, when the flap was severed from the thigh and sutured about the wrist in the same manner as at the elbow. Complete healing of all resulted and in a few weeks time the boy was able to make good use of both arm and hand, where formerly there was absolute debility. The method is certainly worthy of further trial.

The Treatment of Felon.—Four kinds of paronychia are commonly observed. (1) That seated between the epidermis and true skin, called "runround;" (2) that situated in the subcutaneous areolar tissue; (3) that occupying the sheath of the tendon, and (4) the most severe, situated between the periosteum and bone. The three last are only different degrees of the same condition known as whitlow or felon. E. W. LEE (N. Y. Med. Jour., March 21, 1903) believes that undue attention is usually paid to the treatment of the more severe cases in the above group. A diffuse cellulitis or general septicemia may follow neglect or a limited incision. A general anesthetic is almost always indicated. Pressure upon the brachial artery and subsequent application of an Esmarch bandage greatly facilitates the operation. A free incision should then be made down to the bottom of the trouble and all pus and débris washed out with peroxide of hydrogen. The cavity is then washed with a 1:1,000 bichloride solution and a swabbing with pure carbolic followed by alcohol renders the parts sufficiently aseptic to allow the wound to be closed and held in position with a snug moist bichloride compress and bandages. Symptoms usually rapidly abate after this method of treatment and in four or five days the wound will be found closed and free from drainage.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 250 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in *registered* letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, MAY 16, 1903.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

WE are glad to be able to present our readers this week with a detailed account of the proceedings of the Sixth Triennial Meeting of the Congress of American Physicians and Surgeons, which has been in session in Washington during the present week. The transactions show what a high grade of scientific work on many subjects is being accomplished in all parts of this country and how distinctly the best American medicine is contributing to the medical knowledge of the world, to a degree that is attracting the attention of foreign medical men quite as much as American enterprise in other fields has drawn to itself the comment of other professions and workers. This is a phase of the "American Invasion" that cannot be commended too highly and leaves no room for regret. It makes for the highest humanitarian purposes and the only greeting to it in its youthful vigor can be the Roman plaudit of the successful young athlete, *Macte Virtute puer sic iter ad astra.* "More power to you, boy; that is the road to fame."

The general sessions of the Association of American Physicians and Surgeons, and the special meetings of the Medical and Surgical Associations have been rich in interest. The symposia on the Pancreas and on the Gall-Bladder were eminently worthy of the present state of our knowledge and the progressive tendencies which characterize recent work in these rich fields. It is not surprising that with such distinguished contributors as Fitz, to whose monograph the medical world owes the beginning of its definite knowledge of pancreatic disease, Opie, Flexner and Prof. Mikulicz, the symposium on the Pancreas marked a distinct advance in medical knowledge. The partakers in the discussion of gall-bladder diseases were not less distinguished, and with Prof. Ewald, of Berlin, and Prof. Kehr, of Halberstadt, among their number, represent adepts in the special branches of the subject they handled. An English surgeon of distinction, whose particular line of work is in the same field, said that he could not decide which of the afternoons would be for him the most pleasant and informing of his surgical career.

The meetings of the American Surgical Association were crowded and the papers and discussions all of a high order of merit. There is practically universal consensus now, as the first day's discussion showed, that the toilette of the peritoneum should be moist rather than dry. All methods of wiping out the peritoneal cavity have been practically abandoned and flushing out abundantly with normal salt solution substituted. Among the special contributions of surpassing merit were the papers of Dr. Moynihan, of Leeds, Eng., on the Recognition and Treatment of Non-Malignant Diseases of the Stomach, and of Prof. Mikulicz, of Breslau, on cardiospasm, jejunal ulcer and a new technic for severe cases of intussusception.

At the meeting of the American Physicians the contributions on the blood were especially noteworthy. Attention was called to the fact that many cases of acute lymphatic leucemia are evidently occurring in this country, though most of them remain unrecognized. Not a few of them probably masquerade under the guise of fatal typhoid fever and some of them doubtless as acute septicemia, especially after childbirth. At the second day's session Dr. Osler presented the clinical features of what he considers a new symptom complex. This consists of chronic cyanosis without emphysema, renal or cardiac disease, but with a red blood cell count of nearly or quite 10,000,000. His observations of three cases were confirmed by the report of cases of more or less similarity from many parts of the country.

In parasitology, besides Dr. Councilman's description of the protozoon that is probably the

cause of smallpox, which very naturally drew a crowded session to the meeting place of the American Association of Pathologists and Bacteriologists and which we are glad to be able to present to readers of the MEDICAL NEWS this week (see p. 959), there were distinct contributions to our knowledge of the tubercle bacillus and of the pathogeneity of different animal forms for man. Dr. Theobold Smith has demonstrated the bacillus of bovine tuberculosis in the mesenteric glands of a child, thus showing the possibility of milk infection and the rashness of Koch's declaration of the absolute diversity of the species of this bacilli. Dr. Trudeau's work on experimental immunity in tuberculosis, while encouraging the hope that eventually there will be a method of immunizing against the white plague of the north, also confirmed the idea of the essential identity of the various bacillary groups in tuberculosis, since he was able to produce degrees of immunization in various animals by the injection of avian tuberculosis.

The whole triennial meeting was a most encouraging and complete success. The proceedings are a sure index of the thoroughly scientific character of American medicine at the beginning of the twentieth century. Taken in connection with the eminently successful meeting of the American Medical Association last week, this meeting stamps the seal of the highest conservatism in conjunction with characteristic American energy and enterprise on the labors of the American medical profession. We can only wish continued success to the movement so happily begun in the new century.

THE NEXT QUESTION IN SURGERY.

THE surgical section of the American Medical Association, at its meeting in New Orleans last week, unanimously agreed that operation for appendicitis should be done the moment the condition was diagnosed if the symptoms pointed to a limitation of the disease to the appendix itself. After involvement of the peri-appendicular structures the treatment of the case should be along the lines suggested by Ochsner, namely, frequent gastric lavage, absolutely no food or medicine by the mouth; rectal feeding unless it produces pain. Patients who had passed the stage of primary involvement of the appendix, when subjected to this treatment, recovered sufficiently to be operated upon in 97 per cent. of cases, said operation being followed by practically no fatality.

For those of us who practise general medicine, this outlines our course and defines our responsibilities in a most satisfactory manner. Although by no means invariable, yet it is the rule that the peri-appendicular tissues are not involved during the first forty-eight hours, it therefore becomes our duty to operate upon such cases the moment the diagnosis is made. After peri-appendicular involvement, which in most cases means after the forty-eighth hour, the patient should be subjected to the rigid hygiene of Ochsner. A general application of this most recent decision of the surgical section will unquestionably be life-saving in its results.

The next question the surgeon has set for himself is, if possible, of even greater practical importance than that of appendicitis. Digestive disorders have ever been the bane of our people and the humiliation of our profession. What prospect of relief is there in the future of gastric surgery?

Such men as Mayo, Rodman, Ochsner, and others are now teaching that practically all of the surgical diseases of the stomach are the product of gastric ulcer. Who will say that Mayo, that master of American surgery, is not a true prophet when he proclaimed that "We as externists shall soon be able to say to the internist, 'Send to us your intractable cases of neurasthenia, of hysteria, of confirmed gastric irritability and dyspepsia and we will at the end of a simple and virtually safe operation hand you the excised ulcer which you were unable to cure, and which was the causative factor in the condition.'" When that time comes, and come it will, the surgery of the stomach will have reached its goal.

The immense literature of internal medicine furnishes page after page devoted to the treatment of conditions which, until very recently, were looked upon as separate entities. It will not be one of the least of the many great achievements of American surgery when it shall prove the etiological unity, of apparently such widely different conditions as gastric carcinoma, perforation, hemorrhage and ulcer.

The corollary of all this for the general practitioner is that he should make up his mind that those of his patients who have vague gastric symptoms which do not respond to rational internal treatment may not be longer left to their own devices. Such people usually have ulcers of the stomach or duodenum. Unless the practitioner wishes to take upon himself the responsibility of leaving within that patient what is now recognized as the paramount cause of malignant disease as well as many other incurable conditions

he will consult a surgeon and advise his patients to submit to a harmless exploratory investigation, which, in an increasing number of cases, will end in absolute relief by operation.

DR. MARTIN'S APPOINTMENT.

THE MEDICAL NEWS would fall short of its duty if it went to press this week without some expression of approval of the appointment of Dr. Edward Martin as Director of Charities and Correction for the City of Philadelphia by Mayor Weaver. In the past this important department of the city, the general municipal management of her health and sanitation, has had so little in it to make her citizens proud, that we seize the opportunity for commendation with delight.

Dr. Martin's reputation for good judgment, energy, and above all, for sterling honesty, gives us every reason to look upon his acceptance of this important position as the herald of better things under the new rule. This conclusion is confirmed when we consider the remarkable board of advisors with which Dr. Martin has surrounded himself. The profession of America does not furnish six more worthy names than Drs. S. Weir Mitchell, Hobart Amory Hare, J. William White, Charles Penrose, John H. Musser and J. M. Anders. It is understood that the first and only condition under which these gentlemen lend their moral support and practical aid to the Director is that his efforts shall not be hampered by the exigencies of political ends.

Besides these able men of the advisory board, Dr. Martin will consult specialists and will use their knowledge to make a campaign against consumption, pneumonia and allied diseases, and above all, he will take up at once the great question of infant mortality and diseases of children. This latter problem he considers rightfully the most important in dealing with the health of a city. Dr. A. C. Abbott will be retained as Chief of the Health Bureau.

Accepting the preliminary steps in reform as an earnest of results to follow in the near future, the MEDICAL NEWS offers the people of Philadelphia sincere congratulations and will watch with increasing interest the progress in the Department of Charities and Correction.

Summer Home for Cripples.—Charitable women of New York have rented a house in Ridgefield, N. J., as a summer home for destitute cripples. All the inmates of the Darrach Home for Crippled Children on West Thirty-third street, New York, will shortly be removed to the new institution.

ECHOES AND NEWS.

NEW YORK.

Scientist to be Tried Again.—County Judge Platt, at White Plains, N. Y., has signed an order for a new trial for Luther Pierson, a Christian Scientist, who was convicted of being responsible for the death of his child in 1901 from pneumonia without proper medical treatment. The Apellate Division reversed the decision of the lower court, which had convicted Pierson.

Pavilion for the Deaf.—The Schermerhorn Aural Pavilion that has been added to the New York Eye and Ear Infirmary, through a gift of $75,000 by the late Mr. Wm. C. Schermerhorn, was dedicated on last Monday. Among those who took part in the ceremonies was Miss Helen Keller, whose remarks gave evidence of an eloquent sympathy with this effort to bring relief to those in danger of sharing her affliction.

Scarlet Fever on Receiving Ship.—Scarlet fever has broken out upon the receiving ship Columbia, at the Cob Dock, Brooklyn Navy Yard. There are over one thousand sailors on board. Three of the crew have been taken down with the disease within a week. The first case came to the notice of the ship's physician on April 30. The sailor was at once sent to the Naval Hospital, on Flushing avenue. The strictest quarantine has been placed upon the ship.

Loving Cup for Dr. Peabody.—Dr. George L. Peabody, who has resigned the chair of materia medica in the College of Physicians and Surgeons, Columbia University, received a handsome silver loving cup from the student body on May 7, as a mark of their affection and respect. A. H. Auchincloss of the second-year class made the speech of presentation. Dr. Peabody in response expressed the hope that his successor might receive the same deferential regard and maintain the same friendly relations that he himself had experienced during a professorship of seventeen years. The cup is about 18 inches high, vase-like in form, and appropriately engraved.

The Goodsell-Bedell Bill.—At the last regular meeting of the New York Academy of Medicine (May 7), the First Vice-President, Charles L. Dana, M.D., presiding, the following resolutions offered by S. A. Knopf, M.D., and seconded by A. Jacobi, M.D., were unanimously adopted:

Whereas, There has been recently passed by the legislature of the State of New York an act (Goodsell-Bedell Bill) to amend the public health law in relation to the establishment of public sanatoria, hospitals, or camps for the treatment of tuberculosis, which act reads as follows: "A hospital, camp, or other establishment for the treatment of patients suffering from the disease known as pulmonary tuberculosis shall not be established in any town, by any person, association, corporation, or municipality unless the board of supervisors of the county and the town board of the town shall each adopt a resolution authorizing the establishment thereof, and describing the limits of the locality in which the same may be established," and

Whereas, The effect of this bill, if it becomes a law, will make it impossible for any city in the State, or any fraternal order, charitable society, or philanthropic individual, to establish a hospital, camp, or other establishment for the treatment of consumptives, outside the city limits, except under conditions which are practically prohibitive, and

Whereas, By Chapter 327 of the Laws of 1900, cities of the first class are authorized to erect sanatoria out-

side the city limits, such action and the selection of a site to be subject to the approval of the State Board of Health, and by the same law, hospitals and institutions, now, or hereafter established or maintained, are made subject to the approval of the local board of health, and

Whereas, Private property rights are sufficiently protected by general laws, and the process of injunction is open, in case it can be positively shown that unwarranted injury would be inflicted by the establishment of a hospital on a particular site, and the necessity of obtaining the consent of the State Board of Health being an ample guarantee that a site shall not be selected which will threaten or unduly expose the health of any particular neighborhood, and

Whereas, It has been demonstrated in this country and in Europe that properly conducted sanatoria, hospitals and camps for consumptives are not a danger to the neighborhood, and that such institutions are places where the consumptive poor receive a hygienic education and have the best possible chance to be cured and become again useful citizens and supporters of families, and

Whereas, There is at present a great deficiency of hospital accommodation in New York State for this class of patients, be it

Resolved, That the New York Academy of Medicine deeply deplores the passage of the above bill, and urgently requests His Excellency, the Governor, to withhold his signature to the act, which, in case it became a law, would involve the loss of thousands of lives and increase the spread of tuberculosis within the crowded districts of our cities and towns, and which would have to be considered an act of the greatest injustice and inhumanity.

College of Physicians and Surgeons and Hospital Appointments.—The students of the Medical Department of Columbia University have been unusually prominent this year in the number of competitive hospital appointments secured, as may be seen by the following list: John K. Adams, 1902, General Memorial Hospital; Paul A. Adams, 1903, Brooklyn Hospital; D. G. Allen, 1903, Roosevelt Hospital; F. R. Baker, 1903, Westchester County Hospital; William H. Beattie, 1903, Paterson General Hospital; L. Blumgart, 1903, German Hospital; Milton Bodenheimer, 1903, Mount Sinai Hospital; A. J. Brown, 1903, Presbyterian Hospital; Frank E. Brown, 1903, Methodist Episcopal Hospital; H. G. Bugbee, 1903, St. Luke's Hospital; J. G. M. Bullowa, 1903, Mount Sinai Hospital; C. G. Burdick, 1903, New York Hospital; J. R. Cannon, 1903, St. Luke's Hospital; G. B. Capito, 1903, St. Luke's Hospital; A. F. Chace, 1903, Post-Graduate Hospital; T. A. Clay, 1903, Kings County Hospital, Brooklyn; G. H. Cocks, 1903, Post-Graduate Hospital; E. A. Colton, 1903, Gouverneur Hospital; J. J. Cosgrove, 1903, St. Francis Hospital; H. C. Cowles, 1903, General Memorial Hospital; F. H. David, 1903, St. Mark's Hospital; F. A. Deal, 1903, St. Francis Hospital; F. E. DuBois, 1903, Roosevelt Hospital; Roger Durham, 1903, Methodist Episcopal Hospital; L. W. Elias, 1903, Lincoln Hospital; W. B. Elmore, 1903, Roosevelt Hospital; Frank Erdwurm, 1903, Bellevue Hospital, First Division; J. P. Erskine, 1903, New York Hospital; C. W. Fairchild, 1903, Westchester County Hospital; B. S. Fasset, 1903, St. Francis Hospital; L. H. Finch, 1903, City Hospital, Blackwell's Island; Fred A. Finn, 1903, St. Francis Hospital; Louis Franklin, 1903, Christ Hospital; G. A. Fried, 1903, Mount Sinai Hospital; G. H. Gage, 1903, Elizabeth General Hospital; W. V. P. Garretson, 1903, Nursery and Child's Hospital; C. Z. Garside, 1903, City Hospital, Blackwell's Island; W. C. Garvin, 1903, City Hospital, Blackwell's Island; J. E. Grant, 1900, Adirondack Cottage and Sanitarium; W. S. Gregory, 1903, St. Luke's Hospital; F. D. Gulliver, 1903, St. Vincent's Hospital; W. J. Haber, 1903, Mount Sinai Hospital; S. W. Hamilton, 1903, Randall's Island Hospital; Geo. P. Harran, 1903, Newark City Hospital; Royal S. Haynes, 1903, Presbyterian Hospital; A. C. Henderson, 1903, Gouverneur Hospital; S. L. Higgins, 1903, City Hospital, Blackwell's Island; H. V. V. Holcomb, 1903, Bellevue Hospital, First Division; W. H. Holdridge, 1903, St. Francis Hospital; E. P. Huff, 1903, Randall's Island Hospital; O. von Huffman, 1903, St. Luke's Hospital; F. B. Humphreys, 1903, New York Hospital; P. F. Irving, 1903, Roosevelt Hospital; J. S. Jones, 1902, General Memorial Hospital; H. K. W. Kellogg, 1903, St. Luke's Hospital; J. M. Kent, 1903, New York Hospital; H. D. Kenyon, 1903, New York Polyclinic; J. D. Kernan, 1903, Presbyterian Hospital; Leo Kessel, 1903, Mount Sinai Hospital; I. W. Kingsbury, 1903, Presbyterian Hospital; W. H. W. Knipe, 1903, Roosevelt Hospital; Cornell Lawrence, 1903, Harlem Hospital; J. R. Le Comte, 1903, Lincoln Hospital; H. L. Leiter, 1903, Mount Sinai Hospital; P. M. Lennox, 1903, Williamsburg Hospital, Brooklyn; M. F. Lent, 1903, St. Francis Hospital; A. J. Leonard, 1903, St. Vincent's Hospital; H. Lorber, 1903, Beth Israel Hospital; F. F. Lyne, 1903, General Memorial Hospital; S. B. Marks, 1903, Post-Graduate Hospital; W. E. McCollom, 1903, St. John's Hospital, Brooklyn; H. O. Mosenthal, 1903, New York Hospital; W. G. Nash, 1903, St. Michael's Hospital; N. W. Nelson, 1903, Beth Israel Hospital; F. J. Newman, 1903, Beth Israel Hospital; A. Nicoll, 1903, St. Vincent's Hospital; L. F. Nicoll, 1903, Bellevue Hospital, Fourth Division; George C. Owens, 1903, St. Mary's Hospital, Brooklyn; L. R. Palmer, 1903, St. Mark's Hospital; J. R. Peabody, 1903, Roosevelt Hospital; D. C. Pierpont, 1903, Bellevue Hospital, First Division; R. E. Pou, 1903, Roosevelt Hospital; R. L. Reid, 1903, New York Hospital; Robert F. Ringland, 1903, S. R. Smith Infirmary, Staten Island; S. Saldino, 1903, Columbus Hospital; G. A. Schnepel, 1903, Harlem Hospital; M. S. Seidler, 1903, General Memorial Hospital; R. J. Shannahan, 1903, Springfield City Hospital; Fred A. Simmons, 1903, S. R. Smith Infirmary, Staten Island; J. J. Sinnot, 1903, St. Vincent's Hospital; Leroy J. Smith, 1903, Bellevue Hospital, First Division; Louis Stork, 1903, Norwegian Hospital; G. T. Strodle, 1903, German Hospital; Charles A. Sylvia, 1902, Manhattan Eye and Ear Hospital; A. W. Taves, 1903, Gouverneur Hospital; Benjamin S. Van Dyke, 1903, Bridgeport Hospital; J. N. Wickham, 1903, Elizabeth General Hospital; H. R. Widmer, 1903, St. Barnabas Hospital; Irving D. Williams, 1903, Bridgeport Hospital; W. H. Wells, 1902, Hudson Street Hospital; B. H. Whitbeck, 1903, Bellevue Hospital, Fourth Division; J. W. Young, 1903, Bellevue Hospital, First Division; H. W. Zinsser, 1903, Roosevelt Hospital.

PHILADELPHIA.

Woman's Medical College.—The annual commencement of the Woman's Medical College of Pennsylvania will be held in the Academy of Music on Wednesday, May 20. Surgeon-General George M. Sternberg, U. S. A., retired, will address the graduating class.

Dr. Mary W. Griscom, until this year Associate Professor of Obstetrics at the Woman's Medical College, has been appointed chief of the obstetrical staff at the Woman's Hospital, with two associates,

Dr. Elizabeth L. Peck, senior member of the staff of the West Philadelphia Hospital for Women, who is also on the staff of the Philadelphia Hospital, and Dr. Sarah H. Lockrey.

Clinics by Dr. Kehr.—Professor Hans Kehr, the German specialist on diseases of the gall-bladder, held several clinics in this city during the past week. Three were held at the Polyclinic Hospital, where a number of difficult cases were operated upon. One of them exhibited the largest gall-bladder ever seen by the noted surgeon. At the Jefferson Hospital, May 9, one man was operated upon, several gall-stones were removed from his gall-bladder and ducts and drainage established. Dr. W. W. Keen acted as interpreter for Dr. Kehr. A noticeable difference in the operation was the exceedingly long abdominal incision as compared with those made by American surgeons.

Protest Against Home Study of Students.—The Committee on Education and Home Study of the Parents' Association met May 8, and decided to bring before the Board of Education a petition signed by 2,000 clergymen, physicians and parents protesting against overwork and home study of pupils. Professor Daniel Bachelor presided and advocated the abolition of yearly examinations, which, he said, bring the pupils into a state of nervous strain and exhaustion. A physician filed a statement of six cases which had been under medical treatment for serious breakdown caused by overstudy. The President of the Board of Education has expressed himself as being in sympathy with the movement for a reduction of the hours of study, and has promised to present the association's petition to the Board at its next meeting.

Pennsylvania Hospital.—At the recent annual meeting of the contributors to this institution the managers reported that the expenditures of the Pine Street Hospital for maintenance during the past year had been $135,184.97, which is $37,000 more than the income, and they called the attention of the friends of the hospital to the importance of adding to its permanent endowment, in order that its work may not be curtailed. During the year just closed 40,701 persons were treated, and of those only a small number paid for board and treatment. The Public Ledger, in an exceedingly pertinent editorial, says: "The oldest and still the foremost of the great charities of Philadelphia is the Pennsylvania Hospital, which has carried on its noble work so long and upon so generous a scale that it has come to be generally regarded as a public institution. And yet it is the one conspicuous hospital in the State that is supported wholly by private benefaction, and never is found in the crowd of applicants for public bounty at Harrisburg. The institution is so well sustained, its equipment so complete, its standards of service are so high, as to give the impression that it is very rich. As a matter of fact, it is dependent on the generosity of its contributors. The recent epidemic of typhoid fever has made unusual demands upon the wards, as many as 120 cases having been under treatment at one time, and the expenses of maintenance have exceeded the receipts by $37,000. Yet the managers do not call upon the legislature for relief. They simply lay the facts before the public, in confidence that their wants will be supplied. The Pennsylvania Hospital remains a monument to old-fashioned, useful philanthropy, of which the City of Brotherly Love has reason to be proud, and which on every account it ought to cherish."

CHICAGO.

Mortality During April.—During April there were 2,628 deaths reported, equivalent to an annual death rate of 16.96 per one thousand. There has not been such a prevalence of the graver diseases since the year following the great fire.

Hospital Wanted by Women.—At the meeting of the alumnæ of the Woman's Medical College, it was proposed by Dr. Mary Coons that a hospital for women, to cost $500,000, be erected near Jackson Park. A committee of five was appointed to report on a plan for the enterprise.

How to Save Diphtheria Patients.—In its latest bulletin, the Chicago Health Department makes the following statements regarding diphtheria: There are numerous physicians who treat yearly a large number of diphtheria cases, who have not lost a patient from this disease for years. Their inflexible rule is to take a culture at the first visit and to administer antitoxin at once when the diphtheria bacilli are found. For a physician to treat a patient with an acute inflammation of the throat for days without a microscopic examination is little short of criminal neglect. The essentials in the treatment of diphtheria are an early diagnosis and the prompt administration of antitoxin. Physicians who are prepared in these essentials are seldom called on to give a death certificate.

Mortality Statistics.—During the week ended May 2, 637 deaths were reported, an annual mortality per one thousand of 17.62. Pneumonia again heads the list with 167 deaths; consumption comes next with 65; violence and heart disease follow, with 39 each. Nervous diseases caused 38 deaths; measles 28, whooping cough 5, scarlet fever 4 and smallpox 2.

Pneumonia.—The treatment of this disease is as unsatisfactory as ever, and its increasing ravages make all other acute infectious diseases relatively insignificant. In the bulletin of the Health Department, for the week ended May 2, the Health Commissioner calls attention to the fact that of the total 2,628 deaths last month, 604 were caused by pneumonia, and only 283 by "the great white plague." This is an excess of 113.4 per cent. of pneumonia deaths over consumption deaths, and while the deaths from consumption have increased 30.4 per cent. in actual numbers over those of April, 1902, the deaths from pneumonia have increased 41.1 per cent. this April over last.

Deaths from Pneumonia Among City Employes.—The frightful bills of mortality and morbidity from this disease in the county treasurer's and other public officers are too recent to need more than mention. Eight of the 167 pneumonia deaths last week were among the 300 treasury employes, and fully thirty more of them are seriously ill of the same malady. The Commissioner again urges that pneumonia is a highly infectious illness, the cause of which is a microorganism in the sputa of those suffering from the disease, and contracted by inhaling this germ. Therefore, the same care should be taken to collect and destroy the sputa that is taken in pulmonary tuberculosis, or in diphtheria or influenza. The fact that the disease is most prevalent when people are most crowded together, and live or work much of the time in badly ventilated apartments makes obvious the necessity of thorough ventilation of houses, offices, factories, theaters, churches, passenger cars and other public places, in order that the air which must be breathed may be kept as clean and free from infectious matter as possible.

CANADA.

Delegate to Berlin.—Dr. F. B. Kendrick, Toronto, chemical instructor in the provincial university, has been appointed by the Committee of the Society of Chemical Industry, Canadian Branch, a delegate to the International Congress of Applied Chemistry, to be held in Berlin, Germany, at Whitsuntide.

Toronto University Graduates in California.—A branch of the Alumni Association of Toronto University was organized in California on March 27 last,. when several M.D.'s were present at the first annual dinner. There are nearly sixty graduates and undergraduates of Toronto University in California and a strong effort will be made to get all these into the organization. Contributions will be solicited in that State for the new Convocation Hall of Toronto University.

Making Doctors by Act of Parliament in Quebec.—The Quebec legislature is engaged this session as usual in the reprehensible practice of making doctors by act of Parliament. Although it has delegated these powers to the College of Physicians and Surgeons of the province, a body of men which commands and enjoys the respect of the medical profession in the province, it time and again has totally disregarded the rights of the College. In several cases recently it has brought relief to several students who have failed to satisfy the demands of the curriculum of the College of Physicians and Surgeons.

The Drug Habit in Toronto.—A Toronto alderman, who is also a physician, has brought to the attention of the City Council the fact that there is at the present time an unusual number of "dope" fiends in that city, a state of affairs which he states demands immediate and earnest consideration at the hands of that body. He has gone to the trouble to make inquiries of druggists and physicians, and finds that there are hundreds if not thousands who have become addicted to the cocaine habit, especially through their constant addiction to a nostrum catarrh cure. It is said that there are business concerns in that city where the whole clerk-body have been demoralized through this so-called catarrh cure, and that the patent medicine alcoholic tippler is not by any means an unknown quantity there. The subject has become of such importance that it is probable that the Medical Health Officer will be instructed to make inquiries and report thereon.

Analysis of Cases of Gastric Ulcer.—According to a report published in the April issue of the Montreal Medical Journal, prepared by Dr. F. P. L. Cantlie, Externe in Clinical Medicine in the Royal Victoria Hospital, Montreal, there have been admitted during the past eight years into that institution 85 cases of gastric ulcer out of 20,596, the total number of general cases admitted during the same time. This gives a percentage of only .004. Of these 85 cases, there were three males and 82 females. The ages varied from seventeen to seventy, but nearly two-thirds were in the third decade of life. There were eight surgical cases and all of these but one were admitted after perforation had occurred. Of the eight cases operated on seven recovered, and the ages of these cases varied from twenty to thirty years. The case which died in this series was operated on fifty-eight hours after perforation; the others as far as could be ascertained within twenty hours.

Obituaries.—Dr. Samuel Bridgland, M.P.P., died at his home at Bracebridge, Ontario, during the past week of Bright's disease. The late Dr. Bridgland was born in 1847, in Toronto. He studied medicine at Jefferson Medical College, Philadelphia, and was graduated from Queen's University, Kingston, Ontario, in 1870. He immediately commenced practice in Bracebridge, where he continued in a large and lucrative practice up to within six months of his death.

Dr. R. B. Cotton, Regina, N. W. T., died on May 6, aged forty-eight years. Deceased went to Regina from Mount Forest, Ont., in 1882. He was a brother of Dr. J. Milton Cotton, Toronto.

GENERAL.

Gift for a London Hospital.—It was given out in London, England, on May 10 that an unknown benefactor has guaranteed £300,000 ($1,500,000) for the rebuilding and modernizing of St. Bartholomew's Hospital as soon as the plans can be put into practicable shape.

Examination for Marine Hospital Service.—A board of officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, 3 B Street, S. E., Washington, D. C., Monday, June 15, 1903, for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service of the United States. For further information or for invitation to appear before the board of examiners those interested may address Surgeon-General Walter Wyman, Washington, D. C.

Cerebrospinal Meningitis on Receiving Ships.—Among the recruits for the navy on the receiving ships Minneapolis and Puritan, lying at the League Island Navy Yard, Philadelphia, cerebrospinal meningitis has made its appearance. Three deaths have been credited to it and a number of the young sailors are now suffering from the disease. The recruits have been provided with tents on shore until the vessels can be thoroughly cleansed and fumigated.

Medical Department Instruction.—The Secretary of War has amended the manual of the Medical Department of the Army so as to provide that the course of instruction in that Department shall be under the supervision of the senior medical officer, and that other medical officers and non-commissioned officers shall act as instructors in assigned subjects. All members of the Hospital Corps, except privates, will be instructed one hour daily, except Saturday, Sunday, and legal holidays, in the prescribed subjects, including exercises in drill regulations, hospital corps, particularly with the loaded litter. Privates will be instructed not less than one hour a week.

Child Labor in Pennsylvania.—It is a matter of regret that the legislature of Pennsylvania adjourned without taking definite action in the matter of child labor in stores and factories. During the past decade the number of children between ten and fifteen years of age has increased 50 per cent., and is now represented by the astounding figures 1,750,000, as recorded in the year 1900. The illiteracy of children in that State is deplorable and places it lowest among those States having an equal wealth of manufacturing industries. As Judge Gray says: "The flesh and blood of little children is coined into money." A committee of individual citizens has been appointed to enforce existing laws or to agitate for better ones, but little or nothing can be done for two years hence, and meanwhile destruction of soul and body are proceeding hand in hand.

Insanity Increasing Among the Negro.—The most sensational feature of the Conference of Charities

and Corrections, held last week at Atlanta, Ga., was the statement made by experts that the negro race is in danger of being destroyed by insanity. The discussion was brought about by a paper read by Dr. Searcy, Superintendent of the Alabama Hospital for the Insane, who claimed that his experience showed that insanity was increasing among the negroes at an alarming rate. Lineal deterioration was largely responsible for the tremendous increase of insanity among the negroes, there being thirteen times as many insane negroes now as at the close of the war.

Migration of Typhoid Fever.—Everybody has learned to look for an increase in the number of typhoid cases during the fall following close upon the return of the summer boarder to his city home, and it is interesting to note that those attacked belong to the class who are accustomed to spend the entire summer season out of town rather than those of more limited means who can spare at the most only a few days. This is probably due to unhealthful surroundings in many so-called resorts as regards food and drink supply, the non-acclimatized and perhaps debilitated denizen of the city falling an easy prey to the influence of the typhoid germ. So long as there are beautiful drives, fine scenery, good golf links and sumptuous menus the ordinary sojourner bothers very little about the water supply or plumbing of the particular place which takes his fancy; but when danger exists the change back to city life is very apt to produce results from the activity of bacilli that have lain dormant perhaps for some weeks. The health boards in every community should see to it that their guests are properly cared for with a view to prevent any sign of disease.

Officers of the A. M. A.—At the New Orleans meeting the House of Delegates was convened in final session at 9 o'clock Friday morning, May 8, and the choice of officers for the ensuing year was the most important business before it. On the third ballot Dr. John H. Musser, of Philadelphia, was elected president. Other prominent candidates for

JOHN H. MUSSER, M.D.

the office were Dr. Lewis S. McMurtry, of Louisville, Ky.; Dr. G. C. Savage, of Nashville, Tenn.; Dr. T. J. Happel of the same State; Dr. H. D. Holton, of Virginia; Dr. J. H. Carstens, of Michigan, and Dr. G. Webster, of Illinois. The Vice-Presidents elected were, first, Dr. G. C. Savage, of Tennessee; second, Dr. Isadore Dyer, of Louisiana; third, Dr. C. Lester Hall, of Missouri, and fourth, Dr. G. F. Jenkins, of Iowa. Drs. Henry P. Newman and George H. Simmons were re-elected Treasurer and Secretary, respectively. Three trustees were elected, as follows: Dr. Wm. H. Welch, of Baltimore; Dr. Miles F. Edwards, of Ft. Wayne, Ind., and Dr. M. L. Harris, of Chicago. The three members of the judicial council whose terms expired were re-elected, to serve another term. Dr. William J. Mayo, of Rochester, Minn., was selected to deliver the oration on surgery at the next meeting; Dr. George Dock, of Ann Arbor, Mich., the oration on Medicine, and Dr. Hermann M. Biggs, of New York, the oration on State Medicine. President Billings announced the appointment of the usual committees and the meeting finally stood adjourned.

Obituary.—Dr. R. Osgood Mason died at his home in West Fifty-eighth street on Monday last at the age of seventy-three. He was born in Sullivan, N. H., was graduated from Dartmouth College and later from the College of Physicians and Surgeons, this city. Dr. Mason has interested himself for years in various psychological studies and has added much to certain conceptions of mental phenomena, particularly on the spiritualistic side. Among his works are: "Telepathy and the Subliminal Self," and "Hypnotism and Suggestion in Therapeutics." He was a member of the New York Academy of Medicine, and of the Society for Psychological Research.

Dr. Edward de la Granja, for more than forty years a leading physician of Boston, is dead, at the age of seventy-three years. He was born in Avilar, Spain, was graduated from the Central University of Spain, and was a member of the Royal Society of Medicine of that country. In early manhood, as a leader against monarchical institutions, he was banished from the country on three different occasions, and during the Crimean War was a brigade surgeon of the allied forces. He was a member of all the Masonic bodies, and was buried by St. Omer Commandery, Knights Templar.

Dr. Dwight S. Chamberlain, President of the Lyons National Bank, died at Lyons, N. Y., yesterday, aged sixty-five years, of typhoid pneumonia. He served as Surgeon in the Ninth Heavy Artillery during the Civil War, and later was in charge of the Soldiers' Hospital at Syracuse. He was a member of the Loyal Legion, and was prominent in Republican politics.

CORRESPONDENCE.

PREDISPOSITION.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Will you kindly allow me to present the following proposition through your columns? Without expressing a personal opinion, I would like to collate those of clinicians, sanitarians and pathologists and would suggest that, to insure their receipt, they be sent to me in the form of private correspondence or references to literature.

"Of all diseases due to parasites, of whatever kind, tuberculosis alone clearly illustrates predisposition by general states of the organism of the host, independently of opportunities for infection and of plainly local lesions or cellular states (as in regard to the malignant neoplasms, if these be considered parasitic) which favor colonization of the parasite. Even in the case of tuberculosis, these latter factors outweigh surely general conditions of diminution of resistance."

Very truly yours,

Buffalo, May 11, 1903. A. L. BENEDICT.

SOCIETY PROCEEDINGS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Held at Washington, D. C., May 12 to 14, 1903.

GENERAL SESSION—MAY 12TH.

The President of the Congress, W. W. KEEN, M.D., of Philadelphia, in the Chair.

Dr. Keen announced as the subject for discussion "The Pancreas and Pancreatic Diseases," and introduced the reader of the first paper, Dr. E. L. Opie, of Baltimore, whose communication was on the "Anatomy and Physiology of the Pancreas."

Aberrant Pancreas.—Dr. Opie said that aberrant forms evidently associated with the pancreas occur in various regions not far distant from this gland itself. They have been found as distant as the stomach, not infrequently in the duodenum, and sometimes even in the jejunum. Dr. Opie has collected reports of such appearances ten times in 2,200 autopsies. The explanation of the anomaly is not easy. Some have considered that there are multiple embryonic foci of pancreatic development. This does not seem a satisfactory explanation, however, for it would be surprising to find so important an organ developing from different centers. Dr. Opie considers that the real explanation of the anomaly is that during the course of development portions of the pancreatic tissue become entangled in the evoluting intestine and during the process of elongation are carried more or less distantly. Hence the pancreatic islands in the gastric submucosa, in the papilla of Santorini and in the bile papilla or in the submucous tissues of the jejunum.

Microscopic Anatomy of the Pancreas.—Dr. Opie said that the microscopic anatomy of the pancreas is far more important than its macroscopic anomalies. The most interesting feature of its histology is due to the discovery by Langerhans, of Berlin, of islands or groups of cells round or oval in form and composed of polygonal elements. These cells are not dissimilar to the other cells of the pancreas originally, but they have no connection with the ducts of the pancreatic gland. It is evident then that they have no function as regards the intestinal secretion of the pancreas. In the midst of them is found a very complete network of capillary blood-vessels. This arrangement reminds one of the glomerulus of the kidney, but, unlike the glomerulus, the vessels composing the vascular tufts of the pancreas have very free anastomoses with each other. At first it was thought that these appearances were characteristic only of the pancreas of man. It has been found to exist, however, in all the higher vertebrates and even in most reptiles and fishes, and it is evident that it is only a question of time until most evoluted animals will prove to have these structures.

Development of Islands.—There is an evident special purpose in this peculiar arrangement of these interasinous cells of the pancreas. Dr. Opie has found in syphilitic children that the columns of cells which should have formed under normal circumstances the islands of Langerhans, were still connected with the ordinary secreting cells of the pancreas. This shows a delay in development, for ordinarily there is no trace of connection between the two sets of cells. The rich vascular supply of the islands of Langerhans reminds one very much of the similar arrangement of blood-vessels in the adrenal glands or in the parathyroid structures. It is evident that the islands represent a so-called ductless gland. The action of the substance which they secrete is exerted through the blood. Recent observations have made it clear that its purpose is to help carbohydrate metabolism. In certain cases of diabetes degenerative changes in the islands of Langerhans have been found. The discovery of the connection between these portions of the pancreas and diabetes makes clear, too, why, in some cases of diabetes, no changes of the pancreas were apparent, since it is possible to have what looks to the naked eye as a normal pancreas, yet containing distinct changes in the islands of Langerhans.

Anatomical Relations of Bile Duct and Pancreatic Duct.—Though there is often an accessory pancreatic duct, usually the bile ducts and pancreatic ducts empty into the intestines through the same papilla. The blocking of the common bile duct then by a biliary calculus if it occurs low down in the duct will also cause blocking of the pancreatic duct. Sometimes this gives rise to a directly open passage between the liver and the pancreas through which bile may flow and cause serious damage to the pancreatic structure. This anatomical relationship is now known to be of extreme importance for certain diseases of the pancreas. Bile flowing over the pancreas may set up acute pancreatitis with all the symptoms peculiar to that condition.

Complexity of Function.—Dr. R. H. Chittenden, of New Haven, Conn., in beginning his paper on "The Physiology and Physiological Chemistry of the Pancreas," said that formerly it was the custom to think that each organ subserved but one function. It is now known, however, that complexity of function is the rule rather than the exception in nature, and the pancreas for instance has not only a fat-splitting ferment, a ferment for the digestion of carbohydrates, a proteid ferment, but has also an internal secretion more important than any of its intestinal digestive functions. A fistula of the pancreas produced by introducing a canula into the duct does not set up any disturbance of the general nutrition of the animal experimented upon. Complete removal of the pancreas, however, causes first serious nutritional disturbance by interference with carbohydrate metabolism and then, soon afterward, death, because of severe diabetes. The pancreas is not merely a salivary gland out of place, as a distinguished physiologist once said, but it is one of the most important organs in the abdominal cavity.

Chemistry of the Pancreas.—One of the most important discoveries with regard to the pancreas made in recent years was the effect upon it of adrenalin. First, there came the observation that the use of extract of the adrenal gland might produce diabetes, then Herter's observation that this was probably due to an oxydizing effect of the adrenal extract upon the pancreatic cells. There is no doubt now that the pancreas is the most important organ as regards sugar metabolism. The liver, the kidneys and the nervous system may each have important influence, but when they are affected, Nature seems to be able to get along without any of them as far as the sugar metabolism of the system is concerned, but when the pancreas is seriously affected, then diabetes is inevitable. A very interesting discovery made recently is that substances are produced during stomach and intestinal digestion which, on absorption, are carried to the pancreas and excited its secretion. This renders still more complex the problem of pancreatic function. It has been thought that the pancreas provides glycolytic enzymes. These are, however, produced in many tissues, though the pancreas may be the most important source of them. There are physiologists who consider that the pancreas acts upon the liver thus influencing the production of sugar and so producing the well-known effect with regard to diabetes. Medical knowledge on this subject, however, is as yet very vague.

Curious Chemical Effects.—How complex is the problem of digestion in general may be gathered from the fact that in certain experiments animals fed upon dextrose were poisoned by oxalic acid, a by-product of the changes of dextrose within the system. Ordinarily dextrose undergoes no such deleterious changes in the system, but when there is a deficiency of calcium salts present in the tissues the production of toxic oxalic acid becomes possible. Recently it has been shown that pentose exists in the pancreas. Salkowski's observations as to the occurrence of pentosuria may help to throw some light on diseases of the pancreas by indicating another diagnostic factor in the urine. The disseminated fat necrosis which follows acute pancreatic disease and which may affect even the yellow marrow of the bones is due to the fat-splitting ferment in the pancreas. When calcium salts are present, lime soaps may be produced by characteristic reaction.

Influence of Diet.—Pawlow has shown that on the diet of the individual depends to no small degree the amount and character of the digestive ferment secreted. On an almost exclusive bread diet, the amylotic ferment is especially strong, with an abundance of fat, the fat-splitting ferment, and the same holds good for the proteid ferment. These investigations will undoubtedly be of service in the treatment of functional disturbances of the pancreas and in the diagnosis of organic trouble.

Pathology of the Pancreas.—Dr. Simon Flexner, of Philadelphia, Pa., said that the division of pancreatic diseases suggested by Fitz in his original monograph is the best yet presented. The three forms of acute pancreatitis are the hemorrhagic, the suppurative and the gangrenous. Fat necrosis occurs with the hemorrhagic and gangrenous forms but not the suppurative. The etiology of acute pancreatitis is now much clearer than before. It has been shown that if substances be thrown into the pancreatic duct, as for instance chloride of zinc or acids, or formalin or bacterial products, hemorrhagic pancreatitis results. Natural and artificial gastric juice, as has been shown by Flexner himself, produce the same result. The interesting feature is the great rapidity with which pathological changes occur. One hour after the injection leucocytes can be seen wandering from the blood-vessels, and in two or three hours hyaline necrosis has taken place.

Influence on Bile.—In a case under the observation of Halsted and Opie, a stone in the ampulla of Vater blocked the common bile duct and really made the ducts of the liver and the pancreas a continuous channel. Opie was able to trace the staining by the bile up into the ducts of the pancreas and to show that certain inflammatory changes which had taken place in the pancreas were due to the irritative effect of the bile. Experiments upon dogs confirm this conclusion and showed the possibility of producing acute pancreatitis by this method. Gangrenous pancreatitis is really secondary to hemorrhagic pancreatitis. The lower resistive vitality of the tissues permits of the growth of micro-organisms which cause gangrene.

Symptomatology of the Pancreas.—Dr. Reginald Fitz, of Boston, said that extensive morbid changes may take place in the pancreas and discovered in the autopsy without there being any notable disturbance of health. There are certain symptoms, however, of pancreatic disease that may help in the recognition of affections of the pancreas. The most frequent of these are fecal fat and the occurrence of undigested muscle fibers in the stools. Fecal fat, it has been said, occurs only when there is liver disturbance associated with pancreatic disease. In 29 cases in which this relationship was studied, jaundice was present in only 12, and diabetes in only 11, in which fecal fat was found. Very seldom were jaundice and diabetes present at the same time. In pancreatic disease, there is an increase especially of the neutral fat. It is important to remember, however, that there are often two ducts of the pancreas and that when the duct of Wirsung is closed by a calculus the duct of Santorini may be opened or there may be an accessory pancreas. Undigested muscle fibers were found in eight cases, in six of which there was also sugar in the urine and in five easily visible fecal fat, though in only two was jaundice present. It seems clear that these symptoms will be of service in the recognition of pancreatic disease. Herter tested the power to digest fat in a case of cancer of the pancreas by putting the patient on an exclusively milk diet when an excess of fat was found in the stools.

Tests for Pancreatic Digestion.—Sahli suggested that capsules hardened in formaldehyde would resist stomach digestion for at least twelve hours, yet be at once acted upon by the pancreas. They were found unacted upon twenty-four hours after ingestion in a case of cancer of the pancreatic duct. If the giving of pancreatic extract improves digestion, there is then indirect evidence of the existence of pancreatic disease. Indican does not bear any necessary relation to pancreatic disease, but an increase of the ethereal sulphates in the urine does bear an important relation according to Herter and Edsall. For acute pancreatitis the important symptoms are those of acute peritonitis beginning in the upper part of the abdomen.

Injuries of Pancreas.—Dr. von Mikulicz-Radecki, of Breslau, Germany, said that each surgeon sees but few cases of pancreatic disease, yet in twelve years he has had the opportunity to observe some 60 cases. The surgeon cannot rely upon functional disturbances of digestion for the diagnosis of pancreatic disease. The danger with which operations upon the pancreas are associated has limited surgical interference with this organ, as also the fact that the patient is often so low in health that he is not able to stand the severe and prolonged operation necessary. Another difficulty of pancreatic surgery is that of controlling hemorrhage. In spite of ligation en masse, blood and secretion escape into the peritoneal cavity and seriously affect the peritoneum. In 91 resections of the stomach done by Mikulicz 25 died. In 30, however, in which there was injury of the pancreas during the breaking up of adhesions, 21 died in most instances from secondary peritonitis.

Tampons and Drainage.—In injuries of the pancreas, drainage is the most important part of the treatment. Of eight cases drained six recovered. Of four undrained, three died. Of 80 cases collected from literature 27 drained gave only 11 deaths, 53 treated without drainage gave 41 deaths. With regard to the treatment of injuries and inflammatory processes of the pancreas, the indications for the surgeon are first to stop hemorrhage and secretion by deep sutures and ligatures en masse and then to use drainage very freely. Operation is not so discouraging as might appear. In 22 gunshot wounds seven were operated upon and only three died. In nine stab wounds eight were subjected to operation and one died. All those not operated upon died. The surgeon must not wait until it is too late. Exploratory laparotomy should be done on suspicion and may be accomplished very readily by local anesthesia, even on a collapsed patient.

Tumors and Cysts of the Pancreas.—Dr. Roswell Park, of Buffalo, said that there are big books on diagnosis of pancreatic disease, yet the diagnosis is still extremely difficult. Of cysts the most common are retention cysts, though the closure of the pancreatic duct does not necessarily lead to cyst formation. So-called proliferative cysts of the pancreas are cystic cavities

that occur in their walls. Hydatid cysts of the pancreas are very rare. Pseudo-pancreatic cysts consisting of fluids in the lesser omental cavity or in bursæ of the peritoneum, are quite common. They are usually spoken of as pancreatic and they are associated with the pancreas in causation. Some form very rapidly and thus reveal their character, for the slower the cyst formation, the more surely is it a true pancreatic cyst. Traumatic cysts are much more frequent in men than in women because of the greater liability to trauma.

Fistulæ of the Pancreas.—Fistulæ of the pancreas are very difficult to deal with. Several have been reported that lasted more than two years. One of them on careful observation showed a great increase of secretion whenever the patient, a young woman, was subjected to emotional strains. Not much can be done actively to cause closure of a fistula, since there is danger of pancreatic secretion causing peritonitis. The diagnosis of pancreatic cysts still remains very difficult. Hydronephrosis and adrenal cysts are the most common sources of error, but ovarian cysts, as in a recent case seen by Dr. Park, may simulate the pancreatic tumor. Cysts of the stomach walls have also been described in this connection. Aspiration is not to be commended even for diagnostic purposes. As Robson says, it is a relic of medievalism. Postoperative drainage will often save life. Drainage should be made from the back, and for this purpose the patient's back should be scrubbed well before operation, so as to have no difficulty or delay during the operation.

Uncertainty in Matters Pancreatic.—In opening the discussion, Dr. Chas. G. Stockton, of Buffalo, said that in spite of all the work that had been done on the pancreas in recent years there was still much uncertainty as to diagnosis. Even with regard to diabetes the connection of the pancreas was as yet not clear. Some cases of severe diabetes had perished from the disease without presenting any noticeable lesions of the pancreas. It seems to be proven from recent cases that the pancreas is intimately associated with polyuria and that this often precedes pancreatic diabetes. At first 60 to 90 ounces of urine are passed, then some glycosuria makes its appearance, finally true diabetes sets in. This sequence of events follows operation on the pancreas not infrequently.

Pancreatic Inflammations Anomalous.—Dr. Stockton is of the opinion that there is scarcely justification for the term inflammation when applied to chronic pancreatic affections. The pancreas undergoes induration not unlike cirrhosis of the liver. As to gangrenous pancreatitis it is too much to assume that it is of putrefactive microbic origin since not infrequently gangrenous patches examined bacteriologically have proved sterile. Hemorrhagic pancreatitis does not follow any general change of arteries, though this is sometimes asserted. Apoplexy of the pancreas, so-called, is unlike apoplexy of the brain, in this respect at least. Nor is the hemorrhage due to a diathesis, for it occurs too commonly. It is probably of infectious origin when non-traumatic though our knowledge is practically all theoretic.

Chances for Successful Pancreas Operations.—Dr. Maurice H. Richardson, of Boston, said that opportunities for successful operative work upon the pancreas present themselves rather rarely. In between 6,000 and 7,000 abdomens opened at the Massachusetts General Hospital in but five or six cases was the pancreas operable. Six cases of acute pancreatitis have been operated upon at the hospital but all have died. Abscesses of the pancreas are much more favorable in their prognosis. Four of these conditions have been operated upon successfully. In general, Dr. Richardson is reluctant to operate upon pancreatic conditions, especially in the flabby stout middle-aged person in whom acute pancreatic conditions are prone to develop. Advantage should be taken of all abdominal operations to determine as far as possible the condition of the pancreas. This is especially true for operations upon the gall-passages. Much practical knowledge of the pancreas may thus be obtained.

American Contributions to Knowledge of Pancreas.—Dr. B. S. A. Moynihan, of Leeds, England, said that until recently pancreatic surgery was considered only as an appendix to gall-stone surgery. Opie had undoubtedly thrown great light on affections of the pancreas by pointing out their direct connection with biliary causation, especially as regards chronic inflammatory processes. Dr. Moynihan has operated upon 15 cases of chronic pancreatitis without any deaths. In one case the succession of events after operation was as follows: There was polyuria amounting to 80 and later 100 ounces in the twenty-four hours. Then, after some months glycosuria followed. The patient is now on the high road to death with severe diabetes. In one case, the first on record, Dr. Moynihan diagnosed a pancreatic calculus and removed it. In a very recent case Mayo-Robson has performed the same operation. In certain cases under Dr. Moynihan's observation there have been large sloughs, so-called gangrenous patches, yet the material has proved absolutely sterile to the most careful bacteriological examination.

ASSOCIATION OF AMERICAN PHYSICIANS.

Eighteenth Annual Meeting, held at Washington, D. C., May 12 to 14, 1903.

FIRST DAY—MAY 12TH.

The session was opened by the annual address of the President of the Association, Dr. James Stewart, of Montreal, who chronicled the deaths of three young but very promising members of the Association, Dr. Wyatt Johnson, of Montreal, Dr. Frederick A. Packard, of Philadelphia, and Dr. Walter Reed, of the United States Army. All three of them were original workers of high order of merit and to Dr. Walter Reed is due perhaps the greatest service conferred upon mankind in this generation—the discovery that yellow fever is spread by the mosquito.

Bathycardia.—Dr. E. G. Janeway, of New York city, described two cases seen, one at autopsy, the other in the dissection room, in which the position of the heart was very low in the body. This was apparently a congenital condition, not acquired and so the name bathycardia seems more suitable for it than cardioptosis. The lungs and heart were normal and the heart was not mobile. The difficulty in these cases during life would be the danger of thinking that some enlargement of the heart existed or some pathological condition of the lungs. Doubtless in such cases interference with the heart's action because of gaseous distention of the stomach would be more serious than under normal conditions.

Dr. Wm. Osler, of Baltimore, said that in certain cases of very large hypertrophy of the right ventricle, due to severe mitral stenosis there is a distinct bulging below the ribs to the left of the sternum. This pulsates and is taken for aneurism of the heart, even of the descending aorta at times, and might be confused with a low position of the heart.

Posttyphoid Fever.—Dr. Francis Delafield, of New York, described a series of fevers occurring after typhoid fever but due to a different pathological process. Such fevers may be due to cystitis, phlebitis, arthritis, and other inflammatory conditions at times caused by the typhoid bacillus, yet not real typhoid. The most frequent type is a short fever of a few hours' duration, oc-

curring for days, due probably to weakness and not of much clinical importance. In certain subjects, however, fever even as high as 103 to 104° F. may recur day after day, yet without any relation to a common typhoid curve. For these cases, as pointed out by Dr. J. C. Da Costa, of Philadelphia, several years ago it is important that low diet and confinement to bed should not be continued indefinitely. Patients must be fed liberally, their diet including meat, and they must be made to get up. It requires no little courage to do this with the fever at 103° F. every afternoon, yet it is the only way. Often these cases present all the manifestations of sepsis. They have not the typhoid look, there is no delirium and there is real appetite. The septic temperature is not controlled by baths, as is the typhoid, and there is a rapid loss of weight and strength if they are kept on liquid diet.

In the discussion, Dr. H. Koplik, of New York, said that such recrudescences of fever, not true relapses, are common in children and the patients become very much emaciated. It is a great mistake to keep them on a low diet. The fever is really an inanition fever or is due to secondary infection.

Secondary Typhoid Manifestations.—Dr. George L. Peabody, of New York, said that physicians will not recognize the true significance of these posttyphoid fevers until cultures of the blood are more commonly made than at present. In a recent case under his observation all the symptoms pointed to a septic condition. There were femoral thromboses on both sides. The fever was typically septic in course, yet the only organism found in the blood was the *Bacillus typhosus*. These secondary typhoid manifestations do not contraindicate the use of solid food. A definite rule as to the times of allowing solid food after typhoid is hard to formulate, but it cannot be determined entirely by the temperature chart, or patients will sometimes be subjected to actual starvation. He believes as soon as there is real appetite for food a hard-boiled egg should be given. This should be so hard boiled that it readily crumbles to powder. After this meat may be allowed, after that farinaceous foods.

Dr Beverly Robinson, of New York, said that some of the posttyphoid fevers are due to the absorption of toxic material from the digestive tract. Physicians are too fearful of using mild purgatives, as if there were danger of producing perforation of the intestine during convalescence.

Artificial Immunity in Experimental Tuberculosis.—Dr. E. L. Trudeau, of Saranac Lake, N. Y., detailed some experiments on rabbits for the production of immunity. Tuberculous toxins do produce some immunity to their own action but this does not last, nor does it protect against future invasions of the disease by living tubercle bacilli. If even such susceptible animals as rabbits, however, are inoculated first with attenuated cultures until there is no reaction to tuberculin and then with virulent cultures of tubercle bacilli a state was induced in which the animal acquired a resisting power against tuberculosis. Though the disease developed after the inoculation the animal tissues were able after a time to bring about a resolution of the lesions and true cure followed. Where actual cure did not take place a prolongation of life, at least three times that of control animals was obtained. Dr. Trudeau showed the specimens of lungs of rabbits, exhibiting the marked tendency to complete resolution in experimentally immunized animals. He concludes therefore that the evidence tends to show that the attainment of a certain degree of toxin immunity does not protect against reinfection, and that whatever degree of immunity has been obtained experimentally is due rather to a bacteriolytic, or what Behring refers to, as isopathic immunity. A living germ seems necessary to the production of whatever degree of immunity has already been attained experimentally.

Bovine Tuberculosis of Human Beings.—Dr. Theobold Smith, of Boston, described two cases of mesenteric gland tuberculosis that had come under his observation. One of these proved by bacteriological tests to be from bovine bacilli, the other from the bacilli of human tuberculosis. In these cases the infection was evidently from the intestinal tract, and the one positive case shows the liability to human infection by bovine tubercle bacilli. A cow was inoculated with cultures from the two cases. The bovine bacillus grew well in the animal's tissues. The human bacillus failed to grow. There was some slowness of growth on the part of the bovine bacillus evidently due to attenuation of virulence in human tissues. Two almost similar cases of mesenteric tuberculosis proved to give cultures of bacilli of the human type, so that out of four cases only one seemed due to infection from tuberculous meat or milk. In response to Dr. Osler's question, Dr. Smith said that there was no macroscopic difference between the lesions due to the bovine and the human bacilli. In the caseating glands in which the bovine bacilli were found there were large numbers of bacilli while very few in those due to a human infection. Dr. Ravenel, of Philadelphia, has reported a case of human mesenteric gland infection also due to bovine bacilli.

Transmission of Bovine Tuberculosis by Milk.—Dr. George M. Kober, of Washington, D. C., said that Koch's declaration that there was so little danger of human infection from tuberculous milk that it could be neglected was undoubtedly rash and not confirmed by observations. Dr. Kober has collected 86 cases from literature in which, after careful analysis, there seems no doubt that human intestinal infection took place from tuberculous milk. Now that more special attention is being concentrated on this point more and more cases are being reported. Country practitioners are more favorably located than those of the city for the satisfactory observation of these cases and tracing them to tuberculous animals. There seems good reason to think that the lymphatic forms of tuberculosis in human beings especially the so-called scrofula of children are more frequently due to bovine tubercle bacilli than to those of human types. Investigations should be conducted especially along these lines.

Protection by Foreign Tubercle Bacilli.—Dr. Trudeau said that undoubtedly rabbits could be protected and distinct immunity to other forms of tubercle bacilli produced in them by injections of avian tubercle bacilli. On the other hand, cows, it has been shown, can be protected against bovine tuberculosis by injections of human bacilli. This would seem to demonstrate the essential identity of the various types of tubercle bacilli.

Dr. Theobold Smith said that it is very doubtful if the identity of classes of bacilli can be argued from reciprocal immunizing powers. This suggests very close biological relationship but no necessary identity, as we know from study of the colon bacilli and related groups and the so-called agglutinating power.

Tuberculosis of the Tonsils.—Dr. Henry Koplik, of New York, said the tonsils, as the seat of tuberculosis, are frequent in the literature. The cases divide themselves first into those observed clinically, and those in which post-mortem examinations have been made. The primary isolated tuberculosis of the tonsil is rare, the secondary forms, especially occurring with pulmonary phthisis, are quite a common form of the disease. The cervical lymph nodes enlarge in tonsillar tuberculosis of both varieties. Isolated forms of tuberculosis of the lymph nodes are especially common and interesting as occurring in children. The secondary enlargement of

these nodes is only of interest as complicating tuberculosis elsewhere. Children furnish the largest quota of cases of tuberculosis of the tonsils, the cause of this is to be found in the evident greater activity and growth of lymph tissue in these subjects. The tonsils are the portals of infection, and play a rôle as carriers of infection throughout the economy. It was at first thought that these nodes were infected from below through the bronchial nodes, this was unnecessary but may exceptionally occur. As a rule the tubercular bacillus enters the tonsils and infects the nodes from above. The cases of Friedman illustrate this. Tuberculous peritonitis often begins in tonsillar tuberculosis with tuberculosis of the lymph nodes. The manner of infection is by the ingestion of infected food or sputum for the most part. The so-called Fütterungs-tuberculosis of the Germans is much more common than has been thought, as cases cited by Dr. Koplik show very distinctly. A clear case of generalized tuberculosis is especially demonstrative of this.

A Skin Lesion of Rapid Growth.—Dr. W. P. Northrup, of New York city, exhibited photographs of a case in which there were a series of lineal albicantes similar to those which occur in pregnant women, just above the knee of a young man who after an attack of typhoid fever grew very rapidly. The scars, at first pinkish but now ivory white, are due to cracks of the corium during the process of rapid growth.

Dr. Abraham Jacobi, of New York, said that such cracks followed by scars occur in connection with other fevers and without any necessary connection with growth. He has seen them not infrequently after scarlet fever.

Dr. William Osler, of Baltimore, said that he had observed such scars after typhoid fever in adults. A friend who suffered from typhoid fever after thirty years presents a very curious series of such lesions on the back. They evidently bear no relation to growth and the splits of the corium evidently occur as the results of lowered nutrition of the parts.

Dr. Janeway, of New York, called attention to the fact that such lineal albicantes are not infrequent in stout men, especially if they lose somewhat in weight as they grow older. They occur not only on the abdomen, where they may be quite as prominent as on any pregnant woman, but especially in the axillary regions and below the groins.

Dermatomyositis.—Dr. F. Forchheimer, of Cincinnati, reported a case of this rare disease, of which there are only some 16 examples altogether in the literature. The affection was characterized in this case by pustular invasion of certain regions followed by tenderness, swelling and edematous infiltration of muscles. It developed in a woman who had been suffering from a severe emotional strain and who was intensely nervous. A prominent feature of the disease was great anorexia. The patient was forced to take about 3,000 c.c. of liquid diet, yet passed only 2,000 c.c. of urine per day. As a sequel of the disease there is a pigmentation that has thus far persisted in spite of treatment. The etiology of the disease is mainly to be found in the woman's nervous condition. The usually accepted explanation of the origin of the disease is that it is an angioneurotic edema with neurotic complications.

Tenement Infant Feeding.—Dr. L. Emmet Holt, of New York, detailed some observations made upon infants in the tenements of New York City with Dr. Wm. H. Park and the New York Board of Health. These infants, 600 in number, were fed in various ways, many of them on grocery milk. In the winter time these got on very well, but in the summer they were liable to many infectious diseases, especially of intestinal location. This milk, however, was practically always boiled before using, there being very few families in which some form of sterilization was not practised. This shows that publicity has accomplished much for the care of the child. As better milk was used the death rate grew less, though many children still suffered from diarrheal affections. The best results were obtained with the milk of distributing stations which assured proper cleansing of bottles and thorough sterilization. Of course, such infants were also kept under observation by the fact of coming for milk.

Care of the Poor for Children.—In spite of poor circumstances many of the children were kept from serious illness by the devotion of parents. It is surprising how few children in the tenement-house districts are bottle-fed, in comparison with those nursed. Not more than five per cent. are entirely fed artificially. This is very different from the impression obtained from dispensary services to which so many bottle-fed infants apply. Very little artificial baby food is employed. Condensed milk is quite commonly used and gives immediate good results; that is the preparation is sterile to begin with, and so causes no digestive disturbance and gives little tendency to diarrhea. Children fed on condensed milk, however, while apparently healthy are prone to exhibit little resistive vitality. They are sure to catch all the diseases that are going, and they readily fall victims even to the milder infections. In general, however, the inspection of the feeding of the children of the poor is encouraging, since it shows how ready they are to accept directions and fulfil them, though they involve no little trouble and expenditure of time and money.

SECOND DAY—MAY 13TH.

Acute Lymphatic Leucemia.—Dr. A. O. J. Kelly, of Philadelphia, reported four cases of acute lymphatic leucemia, a hitherto supposedly rare disease, with the necropsy findings of all the cases. The first patient was forty-nine years of age and was under observation for two months. Symptoms of the disease were present for ten weeks. They began with sore throat and some uncomfortable enlargement of the liver, followed by that of the spleen. There was fever, about 100° F., and at first the blood count showed 17,000, then 25,000 and later 105,000 leucocytes. Among these the lymphocytes were in the vast majority with 97 per cent. of the whole number. Death took place in the eighth week in the hospital. At necropsy the spleen was found enlarged, all the lymph glands, especially the retroperitoneal glands and the bone-marrow, had become entirely lymphoid in character. The second case began quite as insidiously, gave the same clinical picture with fever and gradual weakness and died in four and one-half weeks.

Simulation of Sepsis.—The third case began to develop about eighteen days after the termination of the fourth pregnancy and at first the condition was considered to be due to puerperal sepsis developing late. The examination of the blood made the distinction evident. There were 208,000 leucocytes and later 460,000, finally 570,000, with 97 per cent. of the whole number lymphocytes. In the earlier stages with the first rise in the leucocytes the differential count would give the only distinctive sign that the condition was not septic. All the body glands were found red or splenified and the bone-marrow was lymphoid. The fourth case was somewhat anomalous. Besides the enlargement of liver and spleen and all the lymph nodes, there was a gumma of the liver. Whether this syphilitic process had anything to do with the pathological condition of the blood and

blood-making organs that subsequently developed is not clear.

Origin of Lymphocytes.—The interesting question for the distinction of the two types of leucemia is as to the origin of the mononuclear cells. Ehrlich insists that the lymphocytes originate in the spleen and the lymph glands, while the myelocytes have their origin in the bone-marrow. There are good authorities who insist, however, that the lymphocytes and myelocytes have a common parent in certain marrow cells. Recently intermediate types of leucemia have been described in which both forms of cells were increased in the blood, the lymphocytes most. In some of the reported cases the lymph glands have not been enlarged at all, though the marrow has become distinctly lymphoid. Dr. Kelly is of the opinion that the lymph cells are not merely passive, influenced by chemotaxis, but that they display at least in lymphatic conditions an ameboid movement. This Ehrlich does not admit.

Acute Lymphatic Leucemia and Typhoid Fever.—There are undoubtedly a number of cases of acute lymphatic leucemia masquerading in this country as typhoid fever, going on to fatal termination absolutely unsuspected. The disease begins with fever and weakness and not infrequently there are hemorrhages from mucous membranes, especially the nose. There is enlargement of the spleen, anorexia progressive weakness, and fatal termination in from five to eight weeks. The febrile course is not that characteristic of typhoid, but there is continued fever with exacerbations and the case is set down as anomalous typhoid fever. The blood affection may also or has been hinted in the description of one of the cases simulate acute septicemia and has undoubtedly been mistaken for that disease. The necessity for blood examinations and especially for differential counts of the white cells is very evident.

Fatal Acute Splenic Leucemia.—Dr. Kinnicutt, of New York, described a case of acute lymphatic leucemia. The first noteworthy symptoms were rather frequent nose-bleed, with persistent and apparently causeless vomiting, enlargement of all palpable lymph glands from the size of peas to that of cherries or plums, the larger glands being distinctly tender. The glands on the postpharyngeal wall were also enlarged and the liver and spleen both distinctly palpable below the margins of the ribs. There was an irregular temperature varying from 98° to 103° F. There was some bleeding from the gums and constantly increasing weakness with absolute anosexia. Death took place after sixteen days of observation and after considerable decrease in size of the spleen had occurred. During the last few days of the disease the edge of the spleen had ascended at least 1½ inches under careful observation.

General Enlargement of Glands.—Besides the external lymph glands all the internal lymphatic structures were enlarged. The thymus gland was much hypertrophied and was surrounded by overgrown lymphatic nodules, some of which were adherent to the sternum. There was enormous hyperplasia of the lymphatic tissues of the intestine. The solitary follicles and Peyer's patches were greatly hypertrophied. The appendix, which now for some time has been known to be particularly rich in lymphoid tissue, was increased in size three or four times its normal diameter. There were no nucleated red blood cells though the anemia had reduced the number of red cells below one million. The white cells rose in number to above one-half million and there was frequent oozing of blood through mucous and serous surfaces. Eighty ounces of turbid fluid were found in the peritoneum.

Terminal Increase of Myelocytes.—Toward the end of the case there was a constant increase of myelocytes. This accords not at all with Ehrlich's declaration with regard to the origin of lymphocytes and myelocytes from different sources and the consequent improbability that both kinds of cells should be increased in the same disease. These mixed forms of leucemia have been reported more and more frequently of late years, however. While one week before the fatal termination of the disease the myelocytes represented less than five per cent. of the leucocytes they rose in number until there were 12 per cent. and then finally, just before the end, to over 15 per cent. of the white cells present. This was the case notwithstanding the fact that in the post-mortem examination of the bone-marrow the proportion of myelocytes was found to be only about three per cent. of the cells of that structure.

Clinical Splenic Anemia.—Dr. George Dock, of Ann Arbor, Mich., described two cases of splenic anemia with early and late stages of cirrhosis, that is to say, early and late stages of Banti's disease. The first patient was a healthy looking though rather spare built man, whom Dr. Dock had known and considered in good health for four years. He noticed some discomfort in his left side and found he could feel the lower border of his spleen below the margin of the ribs. He did not mind this, however, and sometime later applied for life insurance. The fact that his abdomen was enlarged was noticed and mentioned in the doctor's report but the risk was accepted. The discomfort of his enlarged spleen became so great that he applied for treatment. Dr. Dock advised removal of the spleen, which Dr. Nancrede performed. The spleen was adherent, however, and many vessels were found as large as the thumb. The patient died not long after the operation.

Long Prolonged Ascites.—The second case was that of a woman of thirty-five years, who had never been pregnant. Six years before she came under observation she suffered from recurrent attacks of dysentery with bloody stools. From the first attack there had been some ascites. Dr. Dock doubted this statement but was assured of its certainty by the family physician who had the case under observation all the time. The spleen was found to be three fingers' breadth below the ribs. The liver was not palpable and was on percussion evidently contracted. The diagnosis cirrhosis of the liver was made. Later, because of the discomfort in the abdomen complained of, a gynecological examination was made and a hard enlarged uterus found. This was operated upon in the hope to relieve her symptoms. A calcified fibroid tumor of the uterus was found and removed. No other pathological condition of the abdomen was found. She recovered from the operation but died from a severe gastric hemorrhage not long after.

Pathological Lesions.—Dr. A. S. Warthin, of Ann Arbor, reported the pathological anatomical details of Dr. Dock's cases, insisting especially on the contraction of the portal vein and the calcic degeneration of its wall in both cases. There were many other points of pathological similarity, however. Both cases presented a typical picture of splenic anemia, viz., splenic fibrosis, etc. The most interesting feature of the two cases was an extensive new formation of lymphoid tissue throughout the root of the mesentery and the prevertebral adipose tissue. In the one case (early stage of cirrhosis) the new lymphoid tissue resembled splenic pulp in structure,

the larger nodes having the character of accessory spleens. In the second case (advanced cirrhosis) the lymphoid tissue presented the characteristics of hyperplastic hemolymph nodes. All of these showed in their blood-sinuses the presence of great numbers of phagocytes containing disintegrating red cells and blood-pigment, the degree of hemolysis apparently being much greater than that occurring in pernicious anemia. No hemosiderin, however, was found in liver, spleen or kidneys. No evidences of red blood-cells destruction could be discovered in the spleen. On the other hand, the bone-marrow showed great numbers of red-cell and pigment phagocytes, as in the hemolymph nodes. Similar changes were found in the hemolymph nodes of the case showing early stage of cirrhosis, but were much less marked; in this case some evidences of hemolysis in the spleen were also found.

Hemolymph Nodes Abundant.—There were some 450 hemolymph nodes in the fat tissue just in front of the vertebral column. These on section looked like little spleens and it was evident that the change in them had taken place as compensatory for the disturbed splenic function. Besides this there was a remarkable tendency to deposit lime salts throughout portal system, fibrosis of all the portal branches, interstitial changes in the pancreas, and the presence in the blood-vessels of great numbers of bone-marrow giant cells. Conclusions drawn from the study of these two cases point to the early loss of splenic function, and its partial compensation by a new formation and hyperplasia of lymphoid and hemolymphoid structures. The splenic function of hemolysis is entirely lost in the late stage, and is compensated for by the hemolymph nodes and bone-marrow. The extensive destruction of red cells in the sinuses of the hemolymph nodes while as marked as in pernicious anemia is unattended by any deposit of hemosiderin in the liver or kidneys. It is, therefore, probable that this hemolysis is only compensatory for the lost splenic function and not the direct result of an intoxication, as in pernicious anemia. In splenic anemia we may, therefore, speak of a compensatory hemolysis, in pernicious anemia of a toxic.

Chronic Lymphatic Leucemia Spleen Normal.—Dr. George Blumer and Dr. H. C. Gardinier, of Albany, New York, presented a report of a case of typical lymphatic leucemia ending fatally after only two weeks of observation in which in spite of characteristic blood changes there was no enlargement of the spleen found at autopsy. The case illustrates the varieties of the condition that exists and will require further study for satisfactory elucidation. The history of the patient was that of an illness of one year characterized by progressive weakness and anemia with dyspnea and loss of appetite. The blood count showed 1,625,000 red cells and 130,000 leucocytes per cubic millimeter. The differential count of 500 leucocytes showed 480 mononuclear elements, 7 transitional cells, and 13 polynuclears, that is to say a marked lymphocytosis. Death occurred two weeks after the patient was first seen. The autopsy showed a lymphoid condition of the bone marrow with practically no enlargement of the lymphatic apparatus. The spleen was considerably enlarged, but the Malpighian corpuscles did not show enlargement.

Similar Cases in the Literature.—Dr. Osler said that Dr. Warthin's description was most suggestive and that there undoubtedly existed a number of cases in literature that would have to be classified under this heading of cirrhosis with stenosis of the portal vein. Personally he felt that such cases are by no means so infrequent as their present status would indicate. Dr. Welch said that he was glad to have his attention specially called to the pathological findings in this case. Specimens that he had preserved would doubtless present after Dr. Warthin's suggestive review some interesting details that had been missed before.

Anemia in Children.—Dr. John Lovett Morse, of Boston, reviewed a series of 22 cases of anemia in children. These show that there is a tendency to instability of the blood in children but there is no justification for the terms anemia infantum, pseudo-leucemia, nor for the other special term splenic anemia of infancy. Enlargements of the liver, spleen, and lymph nodes develop independently of each other and depend rather on the general nutrition and the infectious agents present than on the specific blood disease. The size of the spleen especially is of no pignostic significance. A large spleen may diminish in size in a very short time if the danger line is once passed.

Chronic Cyanosis.—A New Clinical Entity. Dr. Wm. Osler, of Baltimore, described certain cases of chronic cyanosis with polycythemia and enlarged spleen which he believes constitute a new clinical entity. The first case that came under his observation was that of a physician, fifty-four years of age, whom he had long known and in whom, because of the almost permanent cyanosis, he had been very much interested. Notwithstanding the cyanosis, the man seemed never to be short of breath. Dr. Osler thought that he was probably the subject of chronic emphysema. On examination, however, Dr. Osler was surprised to find that there was no emphysema, no heart trouble and only very slight albuminuria with an occasional hyaline cast. His blood condition was, however, very remarkable, in that there were 10,000,000 red blood corpuscles. There was a slightly enlarged spleen, but the number of white blood-cells was about normal. Dr. Osler's second case had been five times in his ward at Johns Hopkins, with remarkable cyanosis effecting his whole body and causing him discomfort, though, as in the former case, there was no lung or heart trouble and only slight albuminuria. This patient had seven to eleven million red blood corpuscles. There was no leucocytosis. The hemoglobin value of the blood was very high. In a third case seen, the patient was a woman suffering from no emphysema, no heart trouble, but with a red blood count of from nine to eleven millions. She had been literally cyanosed for ten years. Her hemoglobin value was 165 per cent. As in the former cases there was a slight enlargement of the spleen, some slight albuminuria and a tendency to constipation.

Ordinary Causes of Cyanosis.—Usually when patients walk into a physician's office with marked cyanosis, he thinks either of congenital heart disease or of emphysema. Occasionally heart patients may be on their feet with severe cyanosis. At times, tuberculosis of the lungs causes marked cyanosis. These cases, however, form evidently a group by themselves. It is to be noted that in congenital heart cases the count of the red blood cells is usually higher than normal. The appearance of the patient, however, must not be taken as an index of the condition of the blood. Some patients have an extra hyperemia of the skin with anemia. This is the so-called anemia rubra. In one of Dr. Osler's cases, this florid appearance was preserved until the number of red cells fell below one and a half million. As an index of how little appearances count for as regards the blood condition, Dr. Osler recently asked a hospital physician to count the blood from the pale

ear, the cyanosed foot and the normal looking hand of a hospital patient. The three blood counts agreed very well. Dr. Cabot has reported several of these cases and other observers have evidently come upon the same symptom complex, though without as yet definitely realizing that it was a distinct entity and to be considered by itself.

Dr. R. C. Cabot, of Boston, in the discussion, said that in his four cases the cyanosis was marked, the blood count very high, but that in two of the cases, besides enlargement of the spleen, there was also enlargement of the liver. The cyanotic skin took on a brownish shade from chronic congestion. In two of his cases venesection gave marked relief. In order to be sure that the increase in red blood corpuscles was not merely an accidental detention of red blood cells at the periphery Dr. Cabot counted also the blood from a vein, but found it agreed substantially with other blood counts. The fundus oculi showed dilated veins with contracted arteries. Dr. Cabot does not consider that a blood count of six millions to six and one-half millions should be called a polycythemia. Many strong young men in active vigorous life have a blood count from six to six and a half million. There should be at least seven and a half million before the condition is considered to be pathological.

Further Examples of the Affection.—Dr. Shattuck, of Boston, reported a case of chronic cyanosis with slight albuminuria which had been diagnosed by the attending physician as Bright's disease. The wife of the patient, however, who had formerly been a schoolmarm, declared the case did not look like Bright's disease and discharged the physician. This patient spat blood freely every morning. He was enormously cyanosed. One morning he vomited blood in great profusion. The attending physician declared that he must have vomited at least a gallon of blood. Instead of being disturbed by this great loss of blood, his pulse was easier and he felt great relief from symptoms. This gave Dr. Shattuck his idea that venesection might be of use in these cases and he found that it did actually prove so. The patient died afterward from gangrene of the foot due to the injury of an artery.

Chronic Cyanosis Not Rare.—Dr. Charles G. Stockton, of Buffalo, said that these cases of chronic cyanosis are evidently not so rare as might be thought from the fact that they are reported infrequently. He has recently had under his care an Armenian who suffered from frequent hemorrhages from the nose with a tendency to spitting up of blood. In his case there was slight dyspnea on exertion. The blood count showed over ten million red cells. While the patient suffered from no localized pain, he was in considerable distress, restless and uncomfortable.

High Color and Anemia.—Dr. A. McPhedran, of Toronto, reported a case of chronic cyanosis associated with polycythemia. He considered that as more careful search was made for these cases, they will be found more frequently. He said that it was not an unusual thing for anemic patients in Canada to have a high color. So much is this the rule that when patients come in complaining of not feeling well, yet present a healthy red appearance, anemia is at once suspected. One of Dr. McPhegran's patients had so high a color that she often heard people remark of her on the street that she must be painted. Notwithstanding this, her number of red blood cells was always under four million. When she complained of feeling ill, she was frequently laughed at because of her excellent appearance.

Further Cases of Chronic Cyanosis.—Dr. H. A. Hare, of Philadelphia, said that he had seen one of these cases of chronic cyanosis, but suspected at that time the presence of some obscure growth in the mediastinum which interfered with the circulation. This was supposed to account for the cyanosis. The fact that an excessive number of red blood cells were present was also noted, but this was thought to be due to the interference with the blood-making apparatus or with some of the important structures in the thorax.

Dr. Norman Bridge reported a case of polycythemia associated with prominence of the eyes and albumin in the urine. In this case he feared that the cyanosis was due to the abuse of coal-tar drugs. The patient has stopped the use of the coal-tar products, yet the cyanosis continues.

Dr. C. E. Edson, of Denver, reported a case observed by Dr. Hall in which there was an intense polycythemia with very severe cyanosis. In this case there was no emphysema and no heart disease. It is evident that polycythemia can exist independently of high altitudes and that the passing polycythemia of the recent advent into a high altitude is only an incidental affair.

AMERICAN SURGICAL ASSOCIATION.

Twenty-fourth Annual Meeting, held at Washington, D. C., May 12 to 14, 1903.

FIRST DAY—MAY 12TH.

Contributions of Surgery to Internal Medicine.—The President, Dr. Maurice H. Richardson, said that even in the event of our being so fortunate as to obtain an autopsy, there was the utmost difficulty in interpreting the living conditions from the dead tissues. The interpretation which the pathologist gives was apt to be altogether at variance with that which the surgeon finds at the operating table if he is so fortunate as to be able to take the time to make proper investigations of the case. This was admittedly the method by which so much progress has been made, by which the internists have been taught so much and is undoubtedly the means through which the great bulk of all lesions of the abdomen will be shown to be surgical rather than medical. One of the most important series of data which could be collected by the operating surgeon bears upon the position of the viscera during life. There is no doubt that the stomach in many cases, and the liver in not a few, occupies positions during life that are unknown in the dead house. The author pledged that in view of the relative safety of exploratory laparotomies very little hesitation should be shown in making them under suitable conditions, and he believes that if the surgeons of the day and of the future will scrupulously study and record the physical signs existing prior to operation and weigh them in the balance with those discovered after the abdomen be opened, a vast array of important data will be found. Then perhaps after years of such collecting a certain proportion of these cases will be positively diagnosed by the internist. Now, however, we are not in the possession of sufficient data to expect this.

The Toilette of the Peritoneum in Appendicitis.—Dr. Geo. R. Fowler, of Brooklyn, said that in case of general infection of the peritoneum, he believed the best technic to consist in thorough irrigation with salt solution by means of tubes so contrived that the current was directed toward the incision. He advocates the establishment of drainage in the lumbar region and advises the use of one in 2,000 bichloride gauze. He

believes eventration and scouring under any conditions whatsoever to be a most unsurgical procedure.

Operations Upon the Stomach with Special Reference to the Peritoneum.—Dr. A. Vander Veer, of Albany, said that the peritoneum is our very best friend. Bearing this in mind, it is necessary to treat it on the strict principles laid down for friendship, viz., never to impose upon it. Impositions consist of traumata, which may be inflicted by mechanical or chemical means. To this end it is most desirable that as accurate diagnosis as possible should be made of the case, thus limiting the size of the incision and consequently of the traumatic injury to the peritoneum. All the fluid of the body with the exception of blood and normal bile are powerful irritants and should be carefully kept away from the membrane.

Toilette of the Peritoneum in Tubercular Peritonitis.—Dr. A. J. Ochsner, of Chicago, said that he wished to call the attention of the society to the fact that surgery had been altogether too aggressive in the treatment of the ascitic forms of this disease. Until it became fashionable a few years ago to attempt to remove the infected area, all these cases went on to recoveries. After this advanced technic was introduced, all of them went on to death. He, therefore, urged with much emphasis a return to the ancient but honorable technic of simple incision and drainage without manipulation or laceration of the infected area.

On Septic Phlebitis of the Roots of the Portal Vein and on Pylephlebitis Together with Some Remarks on the So-called Peritoneal Sepsis.—Dr. Arpad G. Gerster, of New York, said that appendicitis is the most common cause of this very rare but equally dangerous complication. The obdurating thrombi are generally found near the liver, and naturally their relative danger depends largely upon their type. Some thrombi are of a leathery consistency, and do not readily break up under the repeated minor pressures exerted by the recti and other abdominal muscles, whereas, on the other hand, if of the tubular variety, brittle and filled with pus, the slight motions of the part may readily suffice to break them and their contents. The character of the circulation in the liver is such as to enable the passage always of toxins sometimes of germs or even grosser portions into the systemic veins. It is thus easy to see that many cases operated upon by expert surgeons in the interval which inexplicably and as suddenly die, perish because of the liberation of thrombi which had formed in the portal vein or its radicals during the first acute attack of the disease.

Toilette of the Peritoneum in Typhoid Operations.—Dr. R. H. Harte, of Philadelphia, said that the appalling mortality of this condition called for a very rapid and thorough operation. The most important point in determining this operation lay in a recognition of the fact that 95 per cent. of all typhoid perforations occur in the immediate neighborhood of the iliocecal valve. This determines the position of the incision in the lower portion of the right rectus muscle. When found, the indication is not to excise the ulcer but simply to invaginate it, and if there be danger that this procedure may dangerously limit the size of the lumen of the gut, it should be simply sewed into the wound. Extravasation products should be washed away with great quantities of salt solution.

The Toilette of the Peritoneum in Appendicitis.—Dr. S. H. Weeks, of Portland, Maine, said that in the absence of pus, no drainage should be used. Concretions he believed were a frequent cause, necessitating secondary operations. They should therefore be sought for diligently. The method of treating the peritoneum when the intestines are found floating in pus is to irrigate through and through with normal salt solution and to insert glass drains through which gauze wicks have been passed to the remotest parts of the cavity.

Toilette of the Peritoneum in Gunshot Wounds of the Stomach and Intestines.—Dr. Geo. T. Vaughan, of Washington, described two classes in which drainage is indicated. The first class is those in which no peritonitis is found and is grouped according to the presence or absence of visceral contents or of hemorrhage into the abdominal cavity. The second class is complicated by peritonitis, which may be either local or general.

The Treatment of Peritoneum in Spreading and Diffuse Peritonitis.—Dr. Joseph A. Blake, of New York, said that there were two guiding principles in the treatment of the peritoneum. The first obviously is the removal of the nidus. The second, is to give the peritoneum every possible assistance in withstanding the infection. Whereas formerly he invariably drained all his cases very thoroughly, he recently has come to the conclusion that he was employing this technic with unnecessary frequency. Drains in themselves are often productive of intestinal obstruction, and there are many other factors besides the suction action of the diaphragm and gravity which determine the position of purulent exudates. This makes it impossible to decide where to place the drains in order that they may be most effectual. He found by a recent study of his cases that no less than eighteen days had been saved in that group of cases where he did not employ drainage, and furthermore that these cases had come back to a normal temperature in just half the time that had been occupied by the drained group. His treatment then, he said, consisted primarily in early operation, in copious lavage with salt solution, and except in the presence of necrotic material, in closure without drainage.

Dr. Munro, of Boston, in the discussion, said that he was unable to agree with Dr. Gerster as to the rarity of the condition described by him, and, furthermore, that it seemed to him that these cases of septic phlebitis occurred in the subacute variety of appendicitis rather than after interval operations. He believes that the retroperitoneal lymphatics are responsible rather than the liver for the dreadful cases of unexpected death which every surgeon meets with in uncomplicated appendectomies.

Dr. Gerster, in closing, said that to split the portal vein and remove the thrombus when such existed was obviously indicated.

Subdural Implantation of Rubber Tissue in Operations for Inveterate Neuralgia of the Fifth Pair Without Removal of the Gasserian Ganglion.—Dr. Robert Abbe, of New York, said that the success of operation depended entirely upon the depth at which the nerve is attacked. After a prolonged series of observations extending over many years, he has come to the very positive conclusion, which is supported by extensive clinical data, that all the superficial operations are so fleeting in their value to the patient as to be absolutely contraindicated and on the other hand that the frightfully dangerous and unnecessarily destructive extirpations of the ganglion are equally unnecessary and uncalled for. Seven years ago he began to place a piece of rubber tissue upon the bone after simple section of the second and third roots so placed as to completely occlude the lamina. He has many cases, including this one of seven years' duration, which are old enough to prove the absolute practicability and excellence of this technic. He does not use the bone flap incision because of its extensive scar, but enters by a vertical cut and trephines the skull. He controls hemorrhage by high ligation of the external carotid.

Dr. Geo. R. Fowler, of Brooklyn, in discussing this

paper, said that he had tried the ligation of the carotid, but had recently utilized the temporary stoppage of circulation by means of a tape about both vessels. Great care should be taken not to include the jugular in this technic.

Dr. Geo. E. Brewer, of New York, said that eighteen months ago he encountered a terrific hemorrhage while endeavoring to remove a Gasserian ganglion, and as a result was obliged to interpose a piece of rubber tissue after the manner described by Dr. Abbe. A year ago he had voluntarily repeated the operation, and each of the cases was now in perfect condition. Dr. Abbe, in closing, said that he believed all cases of chronic trigeminal neuralgia to be due to infection, either from the teeth or from antrum of Highmore, and that the barrier interposed as suggested would in the vast majority of cases effect a permanent cure.

Single Ulcer of the Urinary Bladder, Non-Tuberculous and Non-Malignant.—Dr. G. E. Armstrong, of Montreal, reported a series of cases in which he had found this condition. He had endeavored to discover their etiology without success. He believed that they were not due either to syphilis, to neoplasm, to trauma, or to infection.

A Case of Enchondroma of the Spinal Column.—Dr. H. R. Wharton, of Philadelphia, reported a unique case of enormous cartilaginous growth from the right side of the lower lumbar vertebræ. It interfered seriously with the patient's locomotion as well as with his motion. Its removal was attended by no particular difficulty and effected a pronounced improvement in his symptoms.

SECOND DAY—MAY 13TH.

Therapeutic Value of the X-ray in Sarcoma.—Dr. Wm. B. Coley, of New York, presented a series of 36 cases, two-thirds of the number consisting of the round-cell variety. Of this total number, it could be claimed in but four that the growth had disappeared, and unfortunately in these there was recurrence. In all, however, there is no doubt that a certain relief of symptoms can be obtained, although by the use of the X-ray alone sarcomata are not profoundly influenced.

Use of the Combined Mixed Toxins and X-ray.—He said that the best results are to be obtained by this combination, there being no doubt that occasional cases which our knowledge does not yet permit us to choose from the unfavorable class, are profoundly influenced, and if not absolutely cured, much retarded in their development by the exhibition of this treatment.

Dangers of the Treatment.—So far as this is concerned, it sums itself up into a judicious use of the agents, so that too much of the neoplasm may not be liquefied at once. Unless this precaution is taken, it is quite possible to make the patient extremely sick from septic absorption, and it is not outside the realm of the possible that metastatic growths may occasionally be caused by the absorption into the circulation of masses of still living malignant cells. Under no conditions does he consider it advisable to use the combination except in inoperable cases, or possibly very rarely in place of certain amputations. That the X-ray surely inhibits sarcomatous growth, particularly when used with the toxin, is not to be doubted. The cases upon which it acts favorably, so far as ultimate outlook goes, are, however, rare. But in these, it should be expressly noted that the treatment, particularly the rays, should certainly be continued for months and probably for years.

Some Contributions to Surgery of the Gastro-intestinal Type.—Prof. Joh. v. Mikulicz-Radecki, of Breslau, Germany, apologized for presenting such a meager contribution as he had to offer to the Association, but said that lack of time had prevented his preparing a paper suitable for the occasion.

Cardiospasm or Dilatation of the Esophagus.—This is an affection of midlife, only recently brought into prominence by his investigations. It is a progressive disorder, the main symptoms of which are due to the retention of food in the lower segment of the esophagus which, owing to an attenuation of the walls from physical and chemical causes, may in advance stages hold as much as a half liter of putrid fluid.

Pathology.—The condition is due to a spasm of the muscles of the cardia, their action resembling to a very great degree that of the sphincter muscles at other portions of the alimentary canal. The recognition of this condition is not difficult if use be made of the author's esophagoscope. An important sequel pathologically is the formation of secondary malignant growths which result from the chronic irritation.

Therapy.—Something may be done in these cases by repeated lavage of the esophagus and by tubal feeding, but if these be unsuccessful, nothing short of an operation will help. This he has practised through a large-sized opening in the stomach. The cardiac sphincter is best dilated by means of an ordinary glove stretcher instrument, and it is desirable to carry this dilatation as far as 7 cm. He looks forward to the time when he shall not only be able to operate through a very minute gastric opening, but possibly with an improved dilator entirely from above. The radiograph is of the utmost value, not alone in diagnosing this condition, but in determining the effect of treatment upon it.

Peptic Ulcer of Jejunum.—He has been able to find only 15 cases cited. Five of these occurred in his own practice. The symptomatology is very similar to that of gastric ulcer, the pain being the most important subjective symptom. Investigation showed him what is at least a remarkable coincidence, viz., that the ulcers follow certain operations upon the stomach, particularly anterior gastro-enterostomy. Without doubt, then, if this premise be accepted, it is a strong objection to the latter operation. Inasmuch, furthermore, as the anterior operation is very frequently done for the relief of gastric ulcer, in which a very marked hyperacidity of the stomach is well known to exist, it seems probable that the drenching of the delicate mucous membrane of the portion of the gut used in this operation which it will be remembered is somewhere about 20 inches below the pyloris, is a much more dangerous process than the similar flooding of the mucous membrane of gut used in the posterior operation, which is much denser and more habituated to resisting the acid, because it is only one-quarter that distance from the pyloris.

Treatment of Benign Operations Upon the Stomach.—Therefore he believes that this is an additional argument against the employment of gastro-enterostomy for any conditions in which use can be made of pyloroplastic operation, and he stated that, in his opinion, the modification devised by Finney was preferable to any other.

Intestinal Intussusception.—He detailed the most interesting account of a case, a woman in whom the tumor which presented at the rectum, was so large that it had become gangrenous and threatened her with death. He was unable to use the ordinary method of operation and instituted a special technic which was so successful in this and in his subsequent case that he desired to present it to the Association. It consists in abdominal section followed by a ligation of the tumor through the abdominal walls. A splitting of the intussuscipiens and a resection of the contained gut, which in his first case included the iliocecal valve and a con-

siderable portion of ilium and colon. Under such conditions there is great difficulty in effecting the removal of the segment, and he was obliged to pull it out from above.

A Personal Record of the Surgery of the Stomach.—Dr. B. S. A. Moynihan, of Leeds, England, confined his remarks entirely to a consideration of the non-malignant diseases of the stomach, their recognition and treatment.

Hemorrhage.—Hemorrhage he divided into several classes, most important of which is that occurring from an acute ulcer, and from the chronic type. In the acute form, the vomiting of blood is sudden, the pulse quickly dropping into an alarming condition of prostration, and the patient evincing every evidence of internal hemorrhage. One of the most important characteristics of this class of hemorrhage is its self-limiting tendency and the remarkable transiency of the anemia following it. The characteristics of the hemorrhages arising from chronic ulcerations of the stomach can be conveniently grouped as follows: First, those which are latent and are characterized by minute concealed leakage which can be detected only by the most careful analysis of stomach contents. Second, those in which the hemorrhage is copious but transient. The subjective symptoms of this type are a pronounced indigestion and anemia. In the third type the hemorrhages recur with alarming frequency, although they come only after repeated and characteristic warning symptoms. They are abundant and grow gradually more severe, frequently a pint of blood being lost on each occasion of bleeding. The fourth class happily is very small and a limited one. It falls neither in the domain of medicine nor of surgery, since it is characterized by instant death resulting from the erosion of a great arterial trunk.

Treatment of Hemorrhage.—In bleeding from an acute ulcer, it is almost always sufficient to subject the patient to the usual medicinal therapy, and unless the hemorrhage should recur, the surgeon is not needed. If, however, he be called upon in such a case, the indication is to do as rapid a gastro-enterostomy as possible. As a rule he will find when operating upon these rather rare cases that the blood is coming not from a single point but from a weeping mucosa, which is leaking from every pore. Obviously no hemostatic agents known will aid in such a condition, and it is certain that nothing short of a gastro-enterostomy will limit the hemorrhage. The bleeding coming from a chronic ulcerative area is characterized by its issuance from a single spot, this being usually the mouth of a good-sized vessel which is held open by the dense structure at the base of the ulcer. The reason these hemorrhages stop is that they become plugged after a depression of the heart allows of the formation of a more or less firm clot. With the recovery of the cardiac action, of course, this clot tends to be torn loose by the heart's action, but this is a small factor compared with the motion of the stomach itself, partly due to the movement of its walls, partly to passive dilatation from decomposition. The author himself has excised the area but twice, and lost one of these cases. After that experience he made up his mind to limit his operations in the chronic as well as in the acute form of hemorrhage to the performance of a simple gastro-enterostomy combined with as little manipulation of the parts as possible. In 76 cases of this class he has had but one death. Nor is this the only reason for his giving the preference to the last-named operation, because, as is well known, the gastric ulcer is very frequently multiple.

Symptoms and Pathology of Chronic Ulcer.—Gastralgia is by far the most frequent and prominent subjective symptom. While hemorrhage may or may not be present, its absence certainly does not contraindicate the presence of a chronic ulcer. The condition is often mistaken for a malignancy both before and at the time of operation. When seized by the hand, the inflammatory growth about the ulcer is usually smooth. It looks clean and of a reasonably normal color. On the other hand, and as a possible means of differentiating it from the foregoing, the malignant deposit is nodular to the touch, grayish and often of a dirty look under inspection. The pathological conditions due to chronic ulceration are wellnigh innumerable, the walls of the stomach being warped into all conceivable shapes, which interfere not alone with the proper blood supply of the part, but also with its normal mobility and the motion of its walls. Thus it seems probable that a relegation of the dyspeptic to the hands of the gastric surgeon rather than to the dispenser of limited breakfasts and of peptogenic powders is the consummation which this year has brought us.

Treatment of Dyspepsia.—Then is to be considered along physical rather than chemical grounds, and many a wretched being who is now suffering and making others suffer, can be relieved by a simple and almost absolutely safe operation. Be the physical signs what they may, chronic dyspepsia is sufficient justification for exploration, and there is no operation in the domain of surgery which gives more brilliant results.

Hour-Glass Contraction.—The revolutionary part of the author's program here consisted in the announcement that this condition is not a congenital, but an acquired one. The two loculæ might, he said, be equal, but because of the dilatation which usually exists, and of the consequent dragging down upon the pylorus which interferes more or less with its patency, there is apt to be a difference in the size of the two pockets. The cardiac loculus being usually the larger, although, of course, this is determined more or less by the position of the bands. These again, since they usually follow chronic ulceration, are, as a rule, to be found nearer the pylorus than the cardia.

Symptomatology.—Unlike many other conditions in the stomach, this is a very positive matter. Any one who is capable of making intelligible observations is able positively to diagnose hour-glass contractions. The two important methods are undoubtedly the employment of a measured quantity of salt solution with a consideration of the amount returned and a manipulation of the stomach during the time that it is filled with the solution and the employment of Seidlitz powder separately taken for the generation of carbon dioxide gas. Percussion should be most carefully accomplished prior to the giving of this mixture, and the diagnosis becomes probable if the dilatation be confined largely to the cardiac end of the stomach, the pyloric sac filling a few moments later. Further in chosen cases, it is not impossible to see the compression bands forming a notch between the two pouches.

Treatment of Hour-Glass Contraction.—This may be extremely difficult, because of the density and the distribution of the adhesions causing it. Again, except the surgeon be remarkably careful, he will sooner or later make the mistake of overlooking the cardiac sac and will connect the pyloric loculus to the jejunum or duodenum, which, of course, will have absolutely no effect in curing the conditions. This implies then that it may be necessary in certain cases of hour-glass contraction in addition to doing the primary gastro-enterostomy, to perform a gastroplasty, a secondary gastro-enterostomy, a gastrogastrostomy or a partial gastrectomy.

Dr. W. W. Keen, in discussing this paper, said that Prof. von Mikulicz had dealt with conditions which

were relatively unknown to him, but that he had had the opportunity while in Breslau, last year, of studying cardiospasm at the side of its eminent discoverer. So impressed was he by the beautiful mechanism of the von Mikulicz esophagoscope that he immediately purchased one, and has had the privilege of using it three times since. He is yet a novice in its employment, however, and for this reason he experienced some difficulty in diagnosing the condition as readily as he had seen it done in Germany. But he believed that this instrument, or one with the slight modification of having the light at the extremity of the tube would ultimately prove of utmost value to us in exploring this region of the body.

Peptic Ulcer of Jejunum.—Dr. Keen has seen no such ulcer following gastro-enterostomy, but he was delighted with the precision of von Mikulicz's observations in the matter, and could readily conceive how such necrotic areas might be produced in the delicate mucosa of the upper jejunum by the undiluted gastric juice. He judged that the method advocated of removing the intussusceptum was not unlike that of Maunsell for performing intestinal suture. He concluded by saying that there could be no manner of doubt that the radical surgery of the stomach has less danger associated with it than the old policy of waiting for developments. He cited two cases of his own, which graphically supported this view.

Dr. W. J. Mayo, of Rochester, Minn., had had but one case of cardiospasm, for which he had done a gastrogastrostomy rather than a dilatation on the principle of giving the part rest.

Gastro-enterostomy Versus Pyloroplasty.—The cases of gastric ulcer treated by gastro-enterostomy do not, in his opinion, undergo an improvement that is always lasting. This conviction has been forced upon him by the proportion of recurrences in a series of over 100 cases in which he has recently operated. Why is it that the procedure fails occasionally to give permanent relief? Probably because the patency of the enteric fistula depends upon the continued closure of the pyloric opening. In cases of chronic gastric ulcer, there is a stenosis of this orifice, partial or complete, produced by the congestion associated with the ulcerative process. So soon as the ulceration has ceased, or at least is held in reasonable check by the absence of irritating fluids passing over it, and by the rest which is afforded by the drainage after operation, the ulcer begins to heal. Immediately the pyloric orifice begins to open and as it opens, the fistula closes. Thereupon there gradually become re-established the very conditions for which operation was done, and most unfortunately the process cannot be inverted, for once closed the fistula can be opened again only through secondary operation. Hence it seems to him that pyloroplasty or some modification of it which shall remove the entire ulcer bearing area of the stomach, and thus not alone cure the primary disease, as well as interdict the possibility of its return, but prevent the remote but grave chance of the ulceration undergoing malignant degeneration.

Dr. Tillmann, of Leipsic, Germany, rose not to discuss the papers, but to thank the Association publicly for the great courtesy which had been shown him on this his first journey to America. He said that we probably did not appreciate how keenly the German medical profession enjoyed its close relationship with America. Science and art, he said, were truly international, and the great men of medicine could hardly be thought of as belonging to one country, since they were all working toward the one grand goal, the elevation and preservation of humanity.

Dr. William L. Rodman, of Philadelphia, said that despite the eloquence of Mr. Moynihan's plea for the exclusive employment of gastro-enterostomy in all non-malignant diseases of the stomach, he still continued to doubt whether it should so frequently be employed in the treatment of acute and chronic hemorrhage. Mikulicz's explanation, furthermore, of the possibility of jejunal ulceration following it was an additional reason for seeking some better technic. True, the English operators were by no means to be blamed for looking with so much favor on a method which gave them such admirable results, but to him it seemed probable that the time was not far distant when, with opportunities to operate earlier, he should be able to lay aside gastro-enterostomy for the more radical and infinitely to be preferred pyloroplasty.

Dr. Leonard Freeman, of Denver, said that he agreed with Dr. Rodman, because he had recently had a case of acute and appalling hemorrhage from a gastric ulcer in a young man apparently sound in health. He performed gastro-enterostomy with immediate and gratifying results, but the man shortly after that died suddenly from a recurrence of the hemorrhage. This obviously could not have happened had he resected the ulcer-bearing area.

Dr. J. M. T. Finney, of Baltimore, arose, he said, to make just two points. The first was that, in his opinion, the most instructive deduction to be made from Mr. Moynihan's classic paper was that in order to quell gastric hemorrhage of any type, the stomach must be given rest and that it must be drained. The second point he desired to make was that in all probability the reason that previous pyloroplasties, many of which had been unsatisfactory, not giving relief simply because the lumen created was not of sufficient size. If drainage can be established at a sufficiently low point, in pyloroplasty, if suitable technic be employed, it drains the stomach through the natural channel which obviously must be better, and to him it seemed that pyloroplasty was the operation of the future.

Dr. L. M. Tiffany, of Baltimore, said that dyspepsia might from now on be considered exclusively a medical disease. He called attention to the fact that while the symptoms usually arise from lesions secondary to ulcerations of the stomach and hence within its walls, certain cases were dyspeptic because of bands resulting from inflammatory conditions in other organs, and involving the stomach wall secondarily.

Dr. N. B. Carson, of St. Louis, took exceptions to Dr. Mayo's statement that the gastric fistula is apt to contract after the opening of the pylorus and cited cases in support of this belief.

Dr. B. F. Curtis, of New York, stated that he had performed gastrotomy in a child nine years of age for the relief of cardiospasm, and had successfully dilated the stricture. He said in regard to hemorrhage that, as was well known, the most minute erosion might produce a prodigious hemorrhage, and he believed it justifiable to ligate the vessel on both sides of the erosion close enough to it not to run any risk of having ischemic necrosis. He had found this technic of service in more than one case. He was unable to agree with Dr. Moynihan that the surgeon unaided with a microscope should be able to differentiate malignant from benign lesions of the stomach.

Dr. Moynihan, in closing, gracefully alluded to the generosity with which his paper had been discussed, and said that he had left the old world, it was true, with a love for gastro-enterostomy and other special methods deep in his heart, but that he was ready and glad to say that what he had learned here would afford him thought for many days to come. The geography of gastric ulcer has yet to be written. If we are to believe the present statistics, malignant implantation is

much more common here than in England, whereas our British cousins appear to be much more liable to perforation and hemorrhage than ourselves.

Gastro-enterostomy.—He said that whatever might be its future, this operation, in his hands at least, gave lasting as well as immediate results. He suggested that perhaps the reason why Dr. Mayo had not met with quite the same success in its employment as Dr. Mayo-Robson and he had, might lie in the difference of their technics. For himself he believed that the opening which he made was so free that no amount of variation in the lumen of the pylorus could ever effect it. Prof. von Mikulicz, in closing, said that he had been so impressed with the possibility of a jejunal ulcer following the irrigation of the jejunum with gastric juice as a result of anterior gastro-enterostomy, that he had recently performed a jejunostomy through which he fed the patient for the first two weeks.

The Therapeutic Value of the X-ray.—Dr. Arthur Dean Bevan, of Chicago, said that he had nothing strikingly new to present. Superficial epitheliomata melt away and disappear after 20 exposures from a soft tube at 100 volts and two ampères. In the lip, however, the outlook is not so favorable, since the mucous membrane of this part is peculiarly liable to the so-called burn. In the breast, which may be taken of a typical example of a moderately deep neoplasm, the rays will often produce an apparent cure, but the patient usually dies of metastasis. The effect of the rays is in general determined first by the situation of the lesion, the vitality of the cells having a very direct bearing. Second, the rapidity of their growth. Third, the size of the neoplasm determines the effect of the ray, inasmuch as their value varies inversely as the size.

Indications for Use of Rays.—If we assume, as we probably may, that the ray rarely if ever stimulates the growth of malignant neoplasms, its chief use seems at present to lie in superficial and slow-growing areas, particularly about the face. All others should be extirpated and followed as a prophylactic measure by at least 20 exposures from a soft tube. Naturally the most important problem is whether there be a possibility of extending the power of the X-ray which works so admirably on the superficial growth, to great depths. This might be accomplished along two possible lines, viz., the physicist might be able to augment their power of destroying low tension cells without increasing their danger to the normal tissues, or it might be possible to reduce the vitality of the cells of the deep neoplasms and get destructive effects with the ray as we at present know it. He has conducted a number of experiments along these lines, and with his associates has given to their experiments the name—"Radiochemic therapy." So far their chief work has been in the direction of attempting to liberate nascent iodine in the neoplasm by first giving the patient immense doses of potassium iodide, and then turning the rays upon the part.

The Value of the X-ray in Superficial Epitheliomata and Tuberculosis.—Dr. W. L. Rodman, of Philadelphia and Dr. G. E. Pfahler, of the same city, presented this paper. Dr. Rodman said that most of the work had been done by his colleague, who in a series of 234 cases of epitheliomata had found that 63 per cent. were reported cured and 36 per cent. improved. The average number of treatments for these cases being 25, and the time consumed about 8 weeks. Rodent ulcer presented a somewhat lower percentage of cure, the condition demanding a longer period of treatment. Of 75 cases of lupus vulgaris 65 were reported cured in eight weeks after 40 treatments. Lupus erythematosus was shown to be just as obstinate as the aforenamed variety. The final results in each, however, compared most favorably with all other methods of treatment. Tuberculous glands in ten cases had all shown favorable results, while in Hodgkin's disease, the results, even in glands very deeply situated, had been profound.

Action of the Rays.—This is not yet understood, but a certain degree of necrosis of the cells is early established, while at the same time a quantity of elastic tissue begins to develop. Some patients seem to have a marked idiosyncrasy to dermatitis and to loss of hair. One patient in their series having been burnt by a single exposure to a ray which had been turned twice a week for two years upon another case without even producing redness of the skin. Curiously enough the conjunctival tissue is not nearly so sensitive as the mucous membrane of the lip.

Some Experience of the Treatment of Inoperable Malignant Disease by Means of the X-ray.—Dr. A. B. Johnson, of New York, presented the histories of 10 cases, nine of carcinoma and one of sarcoma. Of this total eight had died. One, he believed to be markedly improved, and one he felt reasonably sure was cured. He did not speak with great hope as to the future usefulness of this therapeutic measure.

Dr. F. H. Williams, of Boston, said that the rays are probably of very little use after disease has involved a gland; that they are of value probably only in the absolutely superficial growths. He called attention to his fleurometer, by means of which an accurate measure could be made of the amount of rays which were passing from the machine. This ought to be used before employing the rays, so that burns might be avoided.

Dr. W. J. Hearn, of Philadelphia, would operate in every case no matter where it might be situated if it had the least semblance to malignancy, the two solitary exceptions being keloid and rodent ulcer.

Dr. Bevan, in closing, said that there was no excuse for using the rays on anything except absolutely superficial growths, as a postoperative prophylaxis and as an experimental study in non-operable cases.

Dr. Rodman said that undoubtedly the best treatment for epitheliomata and tuberculosis about the face and also occasionally for tuberculous glands was the X-ray. In deeper tissues, however, their action was as yet problematical.

Dr. Johnson said that all operable tumors should be removed, save on the face, when superficial. We do not as yet know the value or the limitation of the X-ray. and particular attention should be paid to an effort not to allow the general public to become possessed of the idea that the rays would cure cancer.

The Results of Operation for the Radical Cure of Inguinal and Femoral Hernia with an Analysis of 1,000 Cases Operated Upon Between 1891 and 1902.—Dr. Wm. B. Coley, of New York, said that his inguinal cases numbered 937, the femoral 66, 500 had been in children under fourteen years of age. It is a mistake to suppose that operations on children for the relief of hernia are easy. The technic should be followed out with the precisest care, and because the smallness of the parts is often a very difficult matter. He had performed Bassini's operation on nearly 200 women without a single recurrence. He is sure that the tense external abdominal ring, rather than the neck of the sac, as is generally taught, causes the majority of strangulations. Increased experience proves the value of absorbable material.

Report of a Case of Gangrene of 15 Inches of Cecum and Ilium After an Operation for Appendicitis.—Relief of Anus after Repeated Operations.—Dr. N. P. Dandridge, of Cincinnati, gave the full details of this case which was characterized by the formation of fistulæ which proved most difficult to

close. Dr. Ochsner, in discussing the case, said that the Murphy button should always be placed in perfectly healthy tissue; otherwise fistulæ would result. It would have been much better to transplant the ilium into the ascending colon after amputation of the cecum.

Dr. Fowler, of Brooklyn, said that as he was responsible for the implantation method, he wished to say that the transplantation should have been into the sigmoid and second that circumclusion of the ilium below the button should have been accomplished by a silver wire so as to prevent the passage of any material over the part. Failure to do these things had given rise to the difficulties encountered by Dr. Dandridge.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

Third Annual Meeting, held at Washington, D. C., May 12 to 14, 1903.

The Germ of Smallpox.—The Wednesday Morning Session of the American Association of Pathologists and Bacteriologists, in their third annual meeting in connection with the Sixth Triennial Congress of American Physicians and Surgeons, was almost entirely given up to the consideration of subjects relating to vaccinia and variola. Dr. Howard, of Cleveland, discussed specimens of the ray fungus, as obtained from vaccine virus. In connection with Dr. Wier, of Cleveland, he also reported on the bacteriological investigation of vaccine virus, the methods employed and the results. Various secondary bacterial manifestations of variola were discussed, but the important paper of the session was by Dr. W. T. Councilman, of Boston, on the etiological factor in variola, a paper illustrated by lantern slides.

Development of Etiological Knowledge of Smallpox.—Dr. Councilman said that the first serious investigation in the etiology of smallpox which seems at the present time to have special value, was that made by Weigert in 1873. Weigert noted the inclusion of certain bodies in epithelial cells and made a study of them which is entirely objective and not interpretive. A little later Raymond saw the same appearances and declared that they were due to organisms. Guarnieri, in Italy, studied the details of these cell infusions and made it clear that they were no chance appearances nor due to optical delusions. These views had many opponents, especially in Germany and France, and it was not until Barsilewski, in Russia, gave a more definite description of these bodies that much light was thrown on the subject. The Russian investigator showed that they were not hyaline masses due to degenerative processes within the cells, but that they had a certain reticulated or network structure and that the appearances were specific to vaccinia and to the lesions of smallpox. Barsilewski was able to make eye to eye inoculation of material from these lesions, producing lesions of the same kind with the same epithelial inclusions.

Opposition of Opinions as to Parasites.—The only conclusion that could be drawn from the Russian observations was that these appearances were due to a parasite. The school of the Pasteur Institute, however, insisted that these bodies were only due to the fragmentation of leucocytes. Practically none of the French observers with a microscope were ready to admit the organismal nature of these inclusions. A number of observations were made in England, however, tending to confirm the idea of the parasitic nature of these inclusions and observations of the same tenor were made here in America.

Technic of Investigation.—Vaccinia may be transmitted to certain animals and produces specific appearances in the rabbit and in the cat. The cornea of the rabbit is used for experimental observations, because of its simplicity of structure and a perfect fixation of tissues can be readily obtained. When the cornea is inoculated, in the cells a vacuole is found in the midst of which is a body that takes stains rather freely and contains some chromatin. Careful examination of the body thus observed shows that its protoplasm, when the body has attained a certain size, has a reticulated structure. After a time the chromatin within the body takes on a branch tendency and is evidently on the point of division. Further stages of the parasite show the divided nucleus, and then a little later a number of nuclei, each surrounded by a small portion of protoplasm. These nuclei then, as separate bodies, are found in vacuoles for themselves in neighboring cells or in the original cell. These appearances are rather easy to find in vaccinia.

Parasitic Bodies in Smallpox.—In the deep epithelium of smallpox lesions, in early stages of the eruption, small inclusions are found which are never of the same structure but are evidently similar. The appearance presented is not as satisfactory as in experimental vaccinia on the cornea for technical reasons. In the smallpox issues, however, the metamorphosis of the parasite can be traced up to the stage of segmentation quite as in the case of vaccinia. The bodies observed passed through the same cycle. In smallpox another organism seems to appear as if somehow in vaccinia the organism in question did not accomplish its full cycle of existence. This differing organism can be seen in the nuclei of epithelial cells. It consists at first of small circles surrounding material that stains very faintly. There are faint appearances of chromatin. Gradually the rim of the circle increases in size. Then globular bodies appear in the midst of the rim. These become more complex in structure and have the appearance of vesicles. They stain well with iron hemotoxylin. They contain chromatin, but the chromatin is only brought out by long standing. At first the large central mass of the ring is pale and structureless, its outer edge surrounded by similar bodies with points of chromatin.

Sporulation Stage.—This more or less circular organism with vesicular appearances seems to be the parasite of smallpox in the sporulation stage. Whether these spores later become the sickle-shaped bodies that are so characteristic as one stage of the coccidium. Dr. Councilman does not know, and it has been impossible to trace the organism thus far even in vaccinia. Yet the connection between the bodies seen in vaccinia and in smallpox seems to be complete. In showing the specimens of the parasite in smallpox tissues Dr. Councilman called attention to the fact that as a rule these tissues were almost entirely without leucocytes; hence it does not seem probable that the appearances observed are due to degenerate leucocytes as is sometimes termed. The characteristic bodies can be seen with very low power and their inclusion within the cells is manifest. The appearance of fragmentic nuclei is very different from these appearances and would at once be recognized by any one experienced in microscopic technic of tissue examination.

Exhibition of Specimens.—Dr. Councilman then showed the elongate body occupying a space within the cell and showing more and more structure as the body became enlarged. Certain more or less dumbbell appearances suggest the ameboid form and chro-

matin points can be recognized here and there in the structure. In the oldest parts of the vesicular lesions of smallpox the parasite may be discovered in its nuclear invasion in what seems to be the sexual stage. At this time the cells surrounding it are greatly injured showing that the process is advanced. This intranuclear parasitism does not take place in vaccinia, but seems to be the sexual stage which does not occur in the milder or animal form of smallpox. Certain appearances give almost a double ring and occupy a position within the nucleus usually at a time when nearly all the true nuclear appearances are gone. This seems to be the female or macrogamete form of the parasite. A corresponding appearance, but occupying a position always outside of the nucleus and with certain characteristic differences, notably of smaller size, seems to be the microgamete or male element.

Dr. Councilman feels assured that these appearances can be traced with sufficient distinctness to make it clear that they contain a definite, developing structure whose evolution can be followed step by step and whose appearances indicate the progressive cycles of development of a parasite, which is evidently the etiological element in smallpox. Some of these conclusions have been confirmed by observations upon apes and there seems no doubt that this line of investigation will give interesting and important results.

BOOK REVIEWS.

MATERIA MEDICA, For Nurses. By JOHN E. GROFF, Ph.G., Apothecary in the Rhode Island Hospital, Professor of Materia Medica, Botany and Pharmacognosy in the Rhode Island College of Pharmacy. Second Edition, Revised and Rewritten. P. Blakiston's Son & Co., Philadelphia.

THIS is an excellent little book for nurses and gives sufficient information without in any way encouraging the idea that the nurse should know sufficient about drugs to be able to use them clinically without proper direction. In fact, as is well known, the greater the knowledge the more the lack of confidence, and consequently the less likelihood of abuse in the matter of unwarranted drug administration. Dr. Groff has improved his manual in its second edition, so as to make it even more useful than before.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs, and Text-books of the Leading American and Foreign Authors and Investigators. Collected and arranged under the general editorial charge of GEORGE M. GOULD, M.D. Medicine. W. B. Saunders Company, Philadelphia, New York, London.

THIS year's number of the American Year-Book is well up to the high standard attained in former years. Even the inveterate reader of the medical publications and members of the editorial staff of medical journals, who must keep in touch with medical literature all over the world will find in certain cases practical suggestions and valuable additions to their information in the book. We note two chapters of suggestive value. Loeffler's declaration that where malaria has largely disappeared carcinoma has increased while carcinoma is very uncommon in the tropics where malaria is rife, led to the idea that infection with malaria might make a favorable treatment for carcinoma. Spitzly, Prochnik and Breitenstein, in discussing Loeffler's theory, show that many persons who have had or are actually suffering from malaria have actually developed cancer, shows that there is probably nothing in Loeffler's suggestion.

The discussion of the early diagnosis of tuberculosis shows an almost common consensus, on the part of diagnosticians, now not to wait for physical signs as an absolute necessity for the recognition of the disease. Such symptoms as a slight temporary albuminuria, sudden outbreaks of sweating, pseudo-rheumatic attacks, localized atrophies of muscles, more particularly those lying near the affected lung, especially the outer portion of the sternocleidomastoid muscle, are suggested as suspicious premonitory symptoms of the disease, while variations of pulse and temperature, for which no good reason can be found, carry the case beyond suspicion into the realm of the almost surely tuberculous.

DIE REIZUNGEN DES NERVUS SYMPATICUS UND VAGUS BEIM ULCUS VENTRICULI, mit Besonderer Berücksichtigung Ihrer Bedeutung für Diagnose und Therapie. Von Dr. WILHELM PLOENIES. Verlag von J. F. Bergmann, Wiesbaden.

Dr. PLOENIES' monograph gives an excellent idea of how many reflexes in different parts of the body may follow the irritation set up by gastric ulcer. Undoubtedly most of the clinical material thus gathered is suggestive for a practitioner, but the impression is produced that much of it should have been examined more critically. The irritation of a gastric ulcer becomes in an enthusiast's hands, as all pervasive throughout the body of reflex irritation as astigmatism or muscle balance in the hands of certain ophthalmologists. There are some excellent clinical suggestions given and a very full presentation of our present knowledge of gastric ulcer.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

SURGERY OF THE HEAD. By B. Holmes, B.S., M.D. 8vo, 569 pages. D. Appleton & Co., New York and London.

MANUAL DE BACTERIOLOGIE CLINIQUE. By M. Funck. Second edition. 8vo, 239 pages. Illustrated. H. L. Lamertin, Bruxelles.

ANATOMY OF THE BRAIN AND SPINAL CORD. By Dr. H. E. Santee. Third edition. 8vo, 224 pages. Illustrated. E. H. Colegrove, Chicago.

LABORATORY TEXT-BOOK OF EMBRYOLOGY. By Dr. C. S. Minot. Small quarto, 380 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

DISEASES OF THE HEART AND ARTERIAL SYSTEM. By Dr. R. H. Babcock. 8vo, 853 pages. Illustrated. D. Appleton & Co., New York and London.

MASSAGE IN RECENT FRACTURES. By Dr. W. H. Bennett. Second edition. 8vo, 115 pages. Longmans, Green & Co., New York, London and Bombay.

DISEASES OF THE STOMACH. By Dr. F. Riegl. Edited by Dr. Chas. D. Stockton. 8vo, 835 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

DISEASES OF THE LIVER, PANCREAS AND SUPRARENAL GLANDS. By Drs. L. Oser, E. Neusser, H. Quincke and G. Hoppe-Seyler. Edited by Drs. R. H. Fitz and F. A. Packard. 8vo, 918 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.